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**OCEANOGRAPHIC DATA REPORT FOR SOUTH  
 WEST PACIFIC CRUISES IN THE SEAMAP SERIES.  
 PART 2. WINTER SURVEY DATA 1985 TO 1987**

**L.J. HAMILTON and J.A. BOYLE**

**MARITIME SYSTEMS DIVISION  
 WEAPONS SYSTEMS RESEARCH LABORATORY**



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OCEANOGRAPHIC DATA REPORT FOR SOUTH WEST  
PACIFIC CRUISES IN THE SEAMAP SERIES.  
PART 2. WINTER SURVEY DATA 1985 TO 1987

L.J. Hamilton and J.A. Boyle

SUMMARY (U)

Six oceanographic surveys have been made in the south west Pacific Ocean on HMAS Cook from January 1984 to September 1987 as part of an investigation of physical and acoustical oceanographic parameters known as project SEAMAP. This report presents winter survey data for bathymetry, sea surface temperature, wind speed, sea state and swell, and from expendable bathy-thermograph (XBT) drops, and CTD and Nansen stations. Underway data are mostly presented as four-hourly discrete values on maps of ship track, forming a representative data set rather than a detailed analysis. (The winter survey tracks were also traversed in oceanographic summer; the summer data are presented in a separate report.)

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## INTRODUCTION

This report presents oceanographic data for the south Pacific Ocean collected during a series of three winter surveys on HMAS Cook by the Royal Australian Navy Research Laboratory (RANRL) as part of an investigation known as Project SEAMAP. This organisation became part of Maritime Systems Division in 1987. Data collected during the corresponding summer surveys are reported in a separate publication (Hamilton and Boyle, 1989). Project SEAMAP surveys are made along major shipping routes, and are planned to encompass the seas about Australia (figure 1). The principal aim of SEAMAP is to investigate geophysical and oceanographic factors influencing sonar performance. Acoustic properties of the water column are measured along the same track in both winter and summer to obtain the seasonal extremes.

The South Pacific surveys were conducted along two major circuits, designated A and B (figure 1). The Pacific routes made to date were covered on several cruises, with Route A winter covered in one survey, SEAMAP 6, and route B winter covered in two surveys, SEAMAP 2 and SEAMAP 4. Route B summer was covered in surveys SEAMAP 1 and SEAMAP 5, and route A summer by survey SEAMAP 3. The actual summer and winter cruise tracks made are shown in figures 2 and 3 with the identifying survey name and survey number (eg SEAMAP 1 and RANRL 1/84).

Oceanographic station positions, occupied in both summer and winter, are shown in figure 4. Only the Pacific Ocean surveys have been undertaken to date.

Detailed analyses are not made in this report, but pointers are given to some of the main features of interest in the data. In addition, major ocean current features are identified when appropriate. Data for the three surveys in this report (SEAMAP 2, SEAMAP 4, and SEAMAP 6) are discussed in separate sections, each independent of the other sections. These three sections are preceded by general sections on the data types described, some brief descriptions of oceanography of the south-west Pacific, and details of Nansen and CTD (Conductivity-Temperature-Depth profiler) data processing. The CTD salinity data for surveys SEAMAP 4 and SEAMAP 6 are not well calibrated, and should be used for profile shapes, rather than for absolute salinity values. For these surveys the CTD was used principally as a velocimeter, with sound-speed obtained from an independent sensor also attached to the CTD.



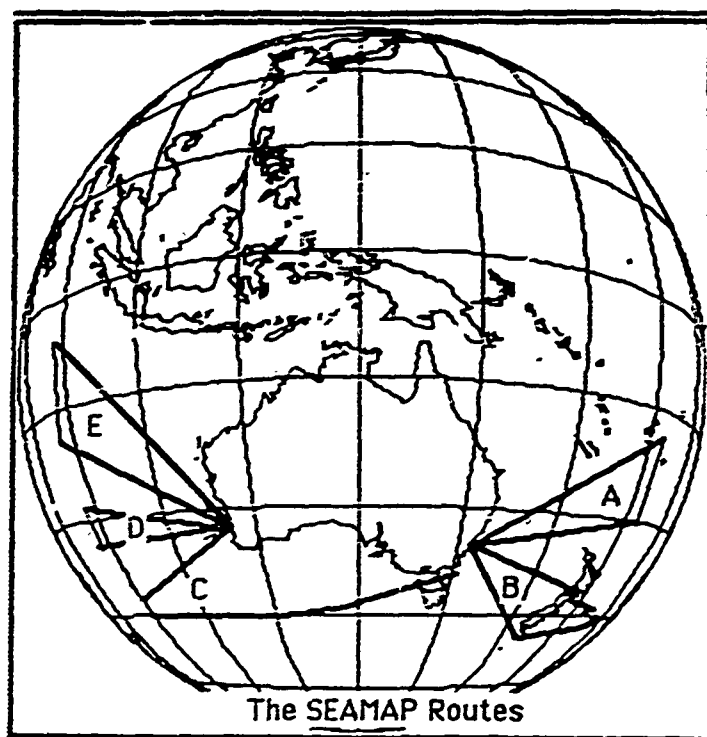


Figure 1. Planned survey routes for Project SEAMAP. Each route to be traversed in both winter and summer

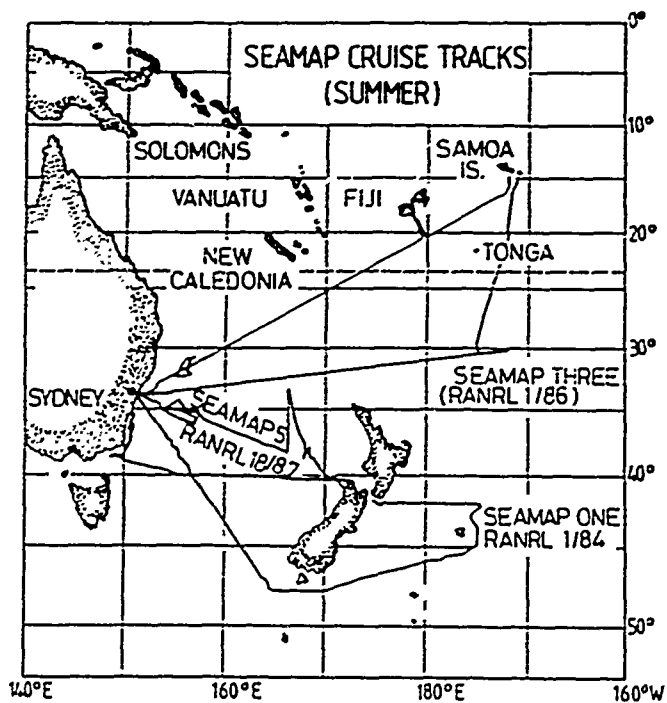


Figure 2. Actual summer routes for Project SEAMAP in the south west Pacific Ocean for 1984 to 1987

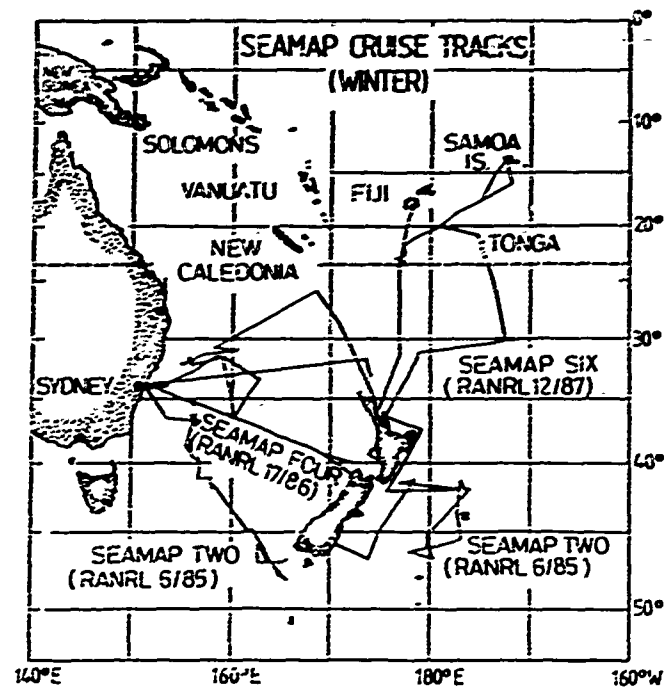


Figure 3. Actual winter routes for Project SEAMAP in the south west Pacific Ocean for 1985 to 1987

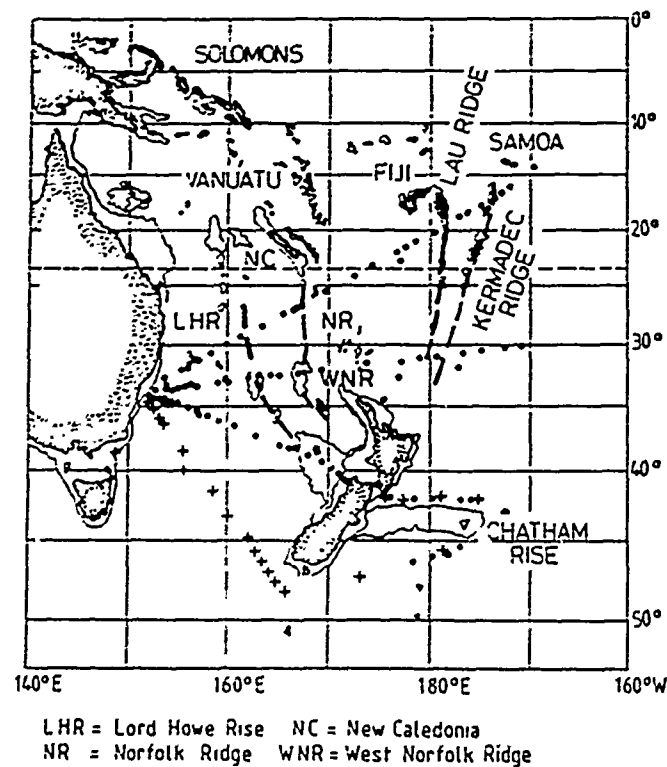


Figure 4. Oceanographic station positions for Project SEAMAP winter and summer surveys in the south west Pacific Ocean for 1984 to 1987. The contour shown is for 1000 m. (+ are Nansen stations; • are VCTOD stations; thick dashed lines are ridges and rises)

## SEAMAP DATA TYPES AND DATA FORMAT

The types of oceanographic data presented in this report, and brief reasons for measuring them are:

- (a) Sea state, swell height, and wind vectors are plotted along ship track from four-hourly observations. [These are indicative of surface roughness and acoustic reflection losses at the air-sea interface.] Table 1 (on page 5) shows the sea conditions associated with the sea state values. The sea state and swell observations were made visually by HMAS Cook's bridge watchkeepers.
- (b) Surface Temperature and Salinity. Sea surface temperature (SST) values are plotted along ship track from four-hourly observations taken from a hull mounted sensor. Surface salinity samples are also shown. [Surface measurements can show the positions of surface fronts.]
- (c) Bathymetry. Cross-sections along ship track are constructed from hourly observations [Topography affects acoustic bottom bounce propagation and paths of currents.]
- (d) Subsurface parameters. Cross-sections are constructed from expendable bathy-thermograph (XBT), Nansen station and Conductivity Temperature-Depth (CTD) profiler data. [Related to surface duct sound speed profiles and acoustic propagation.]
- (e) Nansen station temperature, salinity and depth data are given as listings (and plots) at measured and interpolated depths. [Gives sound-speed profiles and components of geostrophic current.]
- (f) VCTOD (Velocity of sound, Conductivity, Temperature, Oxygen, Depth) values are given as listings and plots. [Provides continuous sound-speed profiles.]

The discrete values given herein represent a subset of the available data. Continuous observations were also made of some of these and a range of variables which were automatically recorded by HMAS COOK's Hewlett Packard HP1000 data logger. The parameters logged, with sensor type, resolution, and data rate, are given in Appendix I (page 193). Any requests for copies of the logged data should be sent to the Australian Oceanographic Data Centre, C/- Hydrographic Office, 161 Walker Street, North Sydney, NSW 2060, Australia.

Acoustic bottom bounce propagation experiments, sea noise and volume reverberation measurements, bottom coring, and seismic profiling were also undertaken during the surveys. These will be reported separately by other authors. Appendix II (page 195) lists available reports in these categories as of May 1989.

TABLE 1. BEAUFORT SCALE WITH CORRESPONDING SEA STATE CODES

—Beaufort Scale with Corresponding Sea State Codes

Sea State	Beaufort number	Wind speed			Seaman's term	U. S. Weather Bureau term	Estimating wind speed		WMO Code	
		knots	mph	meters per second			Effects observed at sea	Effects observed on land	Term and height of waves, in feet	Code
0	0	under 1	under 1	0.0-0.2	Calm	Light	Sea like mirror.	Calm; smoke rises vertically.	Calm, glassy, 0	0
1	1	1-3	1-3	0.3-1.3	Light air		Ripples with appearance of scales; no foam crests.	Smoke drift indicates wind direction; waves do not move.	rippled, 0-1	1
2	2	4-6	4-7	1.0-3.3	Light breeze		Small wavelets; crests of glassy appearance, not breaking.	Wind felt on face; leaves rustle; waves begin to move.	Small, 1-2	2
3	3	7-10	8-12	3.4-5.4	Gentle breeze		Large wavelets; crests begin to break; scattered whitecaps.	Leaves, small twigs in constant motion; light flags extended.	Slight, 2-4	3
4	4	11-16	13-18	5.5-7.9	Moderate breeze		Small waves, becoming longer; numerous whitecaps.	Twigs, leaves, and loose paper raised up; small branches move.	Moderate, 4-6	4
5	5	17-21	19-24	8.0-10.7	Fresh breeze		Moderate waves, taking longer form; many whitecaps; some spray.	Small trees in leaf begin to sway.	Irregular, 6-13	5
6	6	22-27	25-31	10.8-13.8	Strong breeze		Larger waves forming; whitecaps every where; more spray.	Larger branches of trees in motion; whistling heard in wires.	Very rough, 13-20	6
7	7	28-33	32-38	13.0-17.1	Moderate gale		Sea begins to white; foam from breaking waves begins to be blown in streaks.	Whole trees in motion; resistance felt in walking against wind.	High, 20-30	7
8	8	34-40	39-46	17.2-20.7	Fresh gale		Moderately high waves of greater length; edges of crests begin to break into spindrift; foam is blown in well-marked streaks.	Twigs and small branches broken off trees; progress generally impeded.	Very high, 30-45	8
9	9	41-47	47-64	20.8-24.4	Strong gale		High waves; sea begins to roll; dense streaks of foam; spray may reduce visibility.	Slight structural damage occurs; slate blown from roofs.		
10	10	48-55	55-73	24.5-28.4	Whole gale		Very high waves with overhanging crests; sea takes white appearance as foam is blown in very dense streaks; rolling is heavy and visibility reduced.	Birds experienced on land; trees broken or uprooted; considerable structural damage occurs.		
11	11	56-63	64-72	28.5-32.6	Storm		Exceptionally high waves; sea covered with white foam patches; visibility still more reduced.			
12	12	64-71	73-82	32.7-36.9						
13	13	72-80	83-97	37.0-41.4						
14	14	81-89	93-103	41.6-46.1						
15	15	90-99	104-114	46.2-50.9						
16	16	100-109	115-125	51.0-56.0						
17	17	110-115	126-136	56.1-61.2						
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Note: Since January 1, 1956, weather map symbols have been based upon wind speed in knots, at two-knot intervals, rather than upon Beaufort number.

T B/S completely overcast

O/S no clouds

C = celestial

F = radar

S = surface

Dr = dead reckoning

## BRIEF INTRODUCTION TO OCEANOGRAPHY OF THE SOUTH-WEST PACIFIC

In general it is the conditions in the upper hundreds of metres which are of most importance to the SEAMAP project, since this is where parameters vary most rapidly. The oceanography of seas to the east of New Zealand is not well known, and much of Tasman Sea behaviour has yet to be clarified. For example, it is generally believed that the East Australian Current flows in a general west to east direction (after leaving the Australian coastline) as the Tasman Front, but only a handful of surveys have attempted to follow this front. The interaction of the front with the Lord Howe Rise has only recently been investigated in any detail. Seasonal behaviour of currents and convergences are virtually unknown in many areas of the South Pacific Ocean.

The general positions of currents and convergences are given diagrammatically in figure 5. Convergences are regions where two currents meet (or converge), the two currents flowing in directions that cause surface waters to pile up and sink between them. Divergences are regions where waters from two currents move away from each other, with water upwelling between them to preserve continuity of volume. (Both convergences and divergences can occur for currents flowing in the same direction, or opposite directions, depending on orientation in the hemisphere. For example, see Pickard and Emery, 1982.)

The following descriptions of currents shown in figure 5 are constructed from various sources, including Heath (1985) (New Zealand waters), Wyrski (1960) (general), Henin and others (1984) (New Caledonia), Nilsson and Cresswell (1981). Although some currents are described as well known permanent features of the circulation eg, those east and north of New Zealand, not enough surveys have been made to define more than broad tendencies of flows in most parts of the Pacific.

The East Australian Current (EAC) originates in the northern and western Coral Sea where waters piled up by the South-east Trade Winds are constrained to flow southward by the land barriers of New Guinea and Australia. The broad and diffuse Trade Drift sets through Fiji and Vanuatu into the Coral Sea. From April to December the drift splits to flow west-north-west of the Solomons, and into the Coral Sea. From January to March the monsoon allows equatorial water masses to enter from north and north-east between the Solomons and Vanuatu. The Trade Drift is displaced to the south, then being mainly south of the Fiji Islands. The southern boundary of the Trade Drift is subject to considerable fluctuation, and normally corresponds to the position of the Tropical Convergence. From June the current shifts northwards, reaching its most northern position in September, with flow south of Fiji small and weak, and a possible flow reversal south of New Caledonia.

The East Australian Current generally heads seawards near 33 to 34 S to form the meandering Tasman Front. Mesoscale warm core eddies may be spawned south of the front by these meanders, with lives of 6 to 12 months. A component of the current sometimes flows along the east Tasmanian coastline, flooding eastern Bass Strait in the process. Waters generally move west to east through Bass Strait into the Tasman Sea under the influence of the prevailing wind systems. The high salinity waters originating in Bass Strait may be found as salinity and temperature inversions throughout the Tasman Sea, and are often transported east by eddies (eg Scott 1981), and on the Tasman Front, as well as northwards along the Australian continental slope at depths up to 600 m.

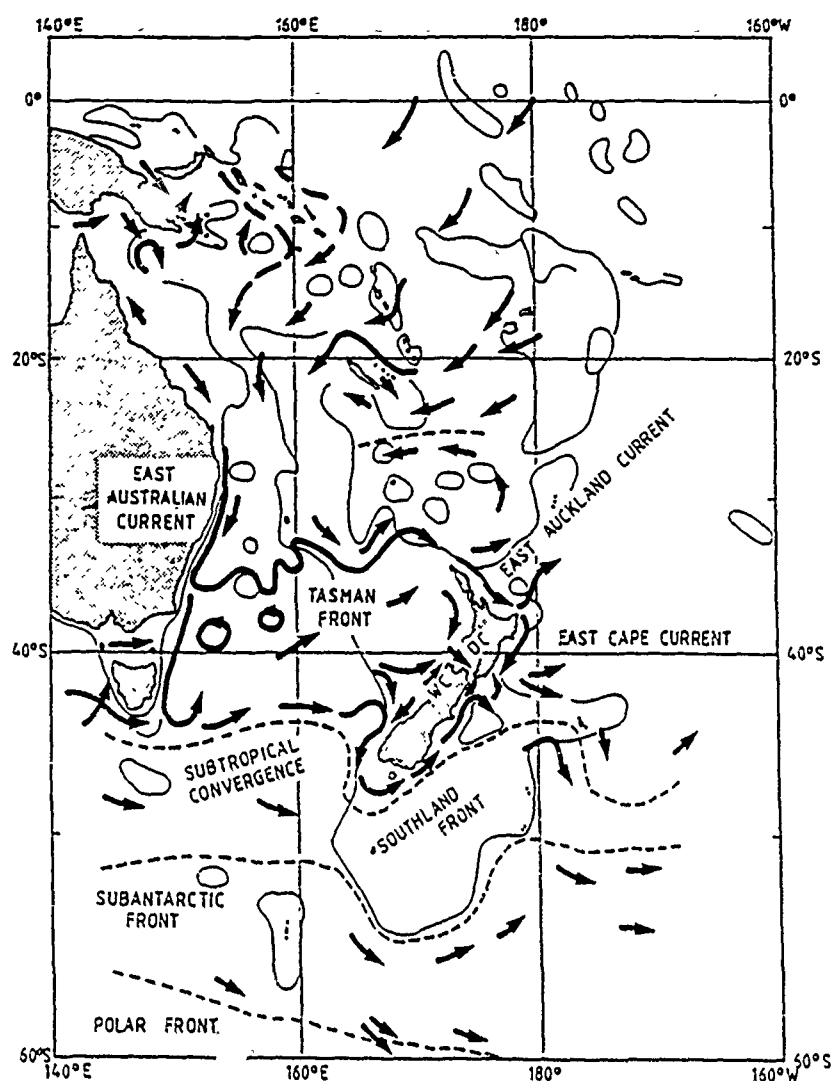


Figure 5(a). General circulation and position of fronts in the south-west Pacific Ocean.  
 (After several sources, especially Heath, 1985 and Wyrski, 1960).  
 (DC = D'Urville Current, WC = Westland Current). The depth contour shown is for 1000 fathoms. Also see figure 5(b) on page 9

The eastward flow of the EAC is influenced by the shallower topography of the Lord Howe Rise, often looping north along the rise, and Norfolk Ridge. The Tasman Front can be traced to at least 160°E but its path then is not well defined. Warren (1970) postulates it as a zonal jet needed to connect the western boundary current off the eastern coast of Australia to the flow east of New Zealand.

South of Australia and New Zealand the broad, deep eastward flowing West Wind Drift (or Antarctic Circumpolar Current) forms the only current running completely round the globe. The northern boundary of eastward flow forms the Subtropical Convergence at about 43°S. The Antarctic Polar Frontal Zone occurs at about 50°S. Waters south of this zone cool and sink to as far north as the Subtropical Convergence, forming several water masses, including Antarctic Intermediate Water. The Subtropical Convergence is at its most northerly from April to October (winter). East of New Zealand the convergence is situated along the coastline, passing through the Snares Depression, along the continental shelf of eastern South Island, and through the Mernoo saddle. Along the coast it is also known as the Southland Front (and Southland Current). East of the Chatham Rise the convergence generally projects southwards. Much of the flow east of New Zealand is constrained by the shallow topography of the Chatham Rise.

Flow out of the Tasman Sea north of New Zealand gives rise to the East Auckland Current (figure 5(b)) flowing south along the eastern coast of the north island. The current branches near East Cape, returning north, and also contributes to the East Cape Current, a warm saline flow. Water passes eastwards through Foveaux Strait (south of South Island) from along the southern flank of the Challenger Plateau. Flow occurs to the south along the continental slope of the south-west coast of the South Island (the Southland Current). The Southland current appears related to the Subtropical Convergence. Waters of the D'Urville, Westland, and East Cape Currents mix in Cook Strait, exiting eastwards around Cape Palliser.

Henin, Guillermin, and Chabert (1984) describe flow around New Caledonia in terms of two wind regimes. During the trade winds (nearly all year round) flow is to the north west, with a south-east component along the northern end of the southern part of New Caledonia. For periods about July-August a westwind regime may cause flow to the south-east on both sides of the southern regions of New Caledonia, with variable flow.

Throughout the eastern part of the south-west Pacific the circulation patterns are little known. Reid (1986) derived general circulation patterns for the South Pacific using an extremely sparse station network, which east of New Zealand very generally show west to east flow, with an unclosed meander centred at 42°S, 165°W. Surface flow to the east of New Zealand in the area east of Chatham Rise is generally to the south-east. Eastward flow at these latitudes constitutes the southern part of an ocean basin scale gyre which flows anti-clockwise around the Pacific. The East Australian Current, described earlier, forms the western boundary current of this circulation. A useful bibliography of the physical oceanography of the Tasman and Coral Seas is given by Stanton (1975).

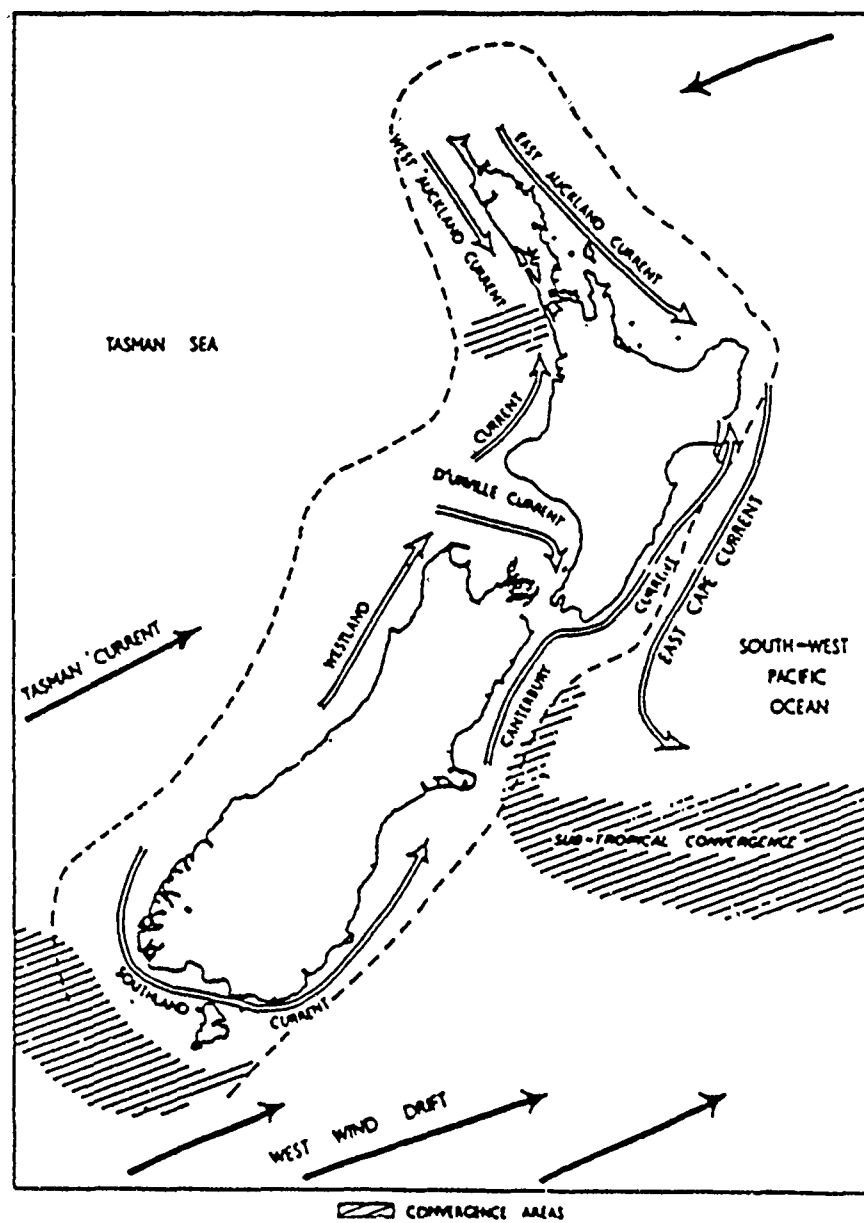


Figure 5(b). Coastal current patterns around New Zealand (Brodie, 1960)



## DATA PROCESSING FOR NANSEN AND CTD DATA

### Nansen station data and processing

Nansen station data were taken using the standard procedures outlined in publication 607 (US Naval Oceanographic Office, 1970). The bow thruster and active rudder on HMAS Cook were used to keep the wire on the hydrology winch vertical. Oxygen samples were analysed using the Winkler method (Major and others, 1972). Salinity samples were analysed for conductivity ratio using an Autolab Inductive Salinometer Mk III model. Derived quantities such as salinity and sound-speed were calculated using the algorithms shown in Table 2. Reversing thermometer temperatures were calibrated and pressure corrected using desktop computer programs (Hamilton, 1982) which are corrected versions of May (1969). Dynamic heights and geostrophic currents were calculated using computer programs in Hamilton (1982), which are also corrected and updated versions of May (1969).

**TABLE 2. REFERENCES TO ALGORITHMS USED TO PROCESS NANSEN STATION DATA**

(DSRT = Deep Sea Reversing Thermoter)

Calculation	Reference
DSRT Temperature Correction	SVERDRUP (1947)
DSRT Reversal Depth	WUST (1933)
Conductivity to Salinity	LEWIS (1980)
Depth to pressure	SAUNDERS (1981)
Density - One Atmosphere	MILLERO and POISSON (1981)
- High Pressure	MILLERO, CHEN, BRADSHAW and SCHLEICHER (1980)
Potential Temperature	BRYDEN (1973)
Sound Speed	WILSON (1960)

**VCTOD data and processing**

The VCTOD [(Velocity of sound, Conductivity, Temperature, Oxygen, Depth (actually pressure)) profiler is a Plessey model 9041. Sensor precisions and resolutions are given in Table 3. Oxygen was not measured with the VCTOD.

**TABLE 3. VCTOD SENSOR CHARACTERISTICS**

Sensor	Range	Time constant (s)	Resolution	Precision	Logged precision	Manuf. calibs (Info only)
Conductivity [C]	10 to 60 mmho/cm	0.015	0.01	0.005	0.01	0.03
Temperature [T]	-2 to 35 C	0.312	0.01	0.005	0.01	0.02
Depth [D]	0 to 6000 m	0.02	0.1% FS (= 6 m)	0.04% FS (= 2.4 m)	1 m	0.1% FS
Sound Speed [V]	1400 to 1600 m/s	0.0001	Unknown	0.05	0.05	0.15

(The data rate is 1.66 Hz) (FS = Full Scale)

Absolute accuracy of the calibrated quantities, quoted as one standard error about the estimate, is as follows:

Pressure	6.3 dbar
Temperature	0.015°C (to 0.01 for pressures over 4000 dbar)
Conductivity	0.04 mmho/cm (in upper waters) To 0.01 at depth (subject to shift)
Sound Speed	0.18 m/s.

Data are calibrated only from reversing thermometer and Niskin bottle measurements made at sea, no laboratory calibration facilities being available. Reversing thermometers and Niskin bottles were mounted in a rosette sampler, with sensors being less than 1 m below the bottles.

Because of the higher gradients in upper waters, it is expected that (without conductivity shifts) calibrations are more accurate at depth, to 0.01 units of temperature (degrees Centigrade), conductivity (mmho/cm), and salinity (PSU), and worsening to over 0.03 units and much higher

towards the surface. The bulk of calibration data is biased to deeper values (4000 to 5000 m) which removes some bias caused at the top end, since calibration curves are linear except for pressure. The calibrations were established from data combined from SEAMAP and other cruises (Hamilton, 1986). Temperature, pressure, and sound speed accuracies are equal to or better than sample bottle measurements.

#### *SEAMAP 6 VCTOD calibrations*

Because of an unexpected shift in the calibration of the conductivity signal from station to station during station 6, salinity calibration is poor in term of absolute value, and also varies between some stations. This means that the salinity data for SEAMAP 6 are not suitable for inclusion in oceanographic data bases, and not suitable for dynamic calculations. The reason for the shift in conductivity calibration is not known. The original cruises for which calibrations were established showed no shifts, and the conductivity sensor is an inductive type, which is not expected to either drift or shift. Calibration remained the same between some sets of stations, but varied at other times from station to station.

The conductivity calibration for the inductive sensor takes the form of a linear correction curve having the same slope for all stations and with an offset term. The shifts in calibration change the value of the offset term, but not the slope. Ignoring a non-linear effect introduced in the calculation of salinity by the shifts means that the salinity profiles given for SEAMAP 6 have the right shape, but are displaced from their true absolute values by some additive constant, in some cases by gross amounts. The constant is not well determined because only a single Nansen bottle was strung above the VCTOD on SEAMAP 6, a rosette sampler not being available.

#### *SEAMAP 2 VCTOD calibrations*

Only the data for survey SEAMAP 2 are well calibrated for salinity, except for station 10, where the rosette sampler was not used. As no conductivity shifts were experienced during SEAMAP 2, the calibration for the other stations was assumed to be applicable. However no calibration data is available for any station deeper than 4900 m, and station 10 data is shown to over 6450 m.

#### *SEAMAP 4 VCTOD calibrations*

The inner glass sleeve of the conductivity sensor was found to be cracked on completion of this cruise so that no profiles or calibrated salinity values are available. The salinity data is pressure affected. Calibrations for other sensors have remained the same during the period of use of the instrument to within the accuracies on page 11.

### VCTOD data processing method

Derived quantities were calculated using the algorithms given in Fofonoff and Millard (1983). Data processing was performed using computer programs written by Dr N. White of CSIRO Marine Laboratories, Hobart. Mismatch in sensor time constants is allowed for by an exponential-recursive filter, as described in Millard (1982). The data is for the down cast, with only monotonically increasing pressure values being used.

The monotonically increasing pressure values were pre-smoothed using a two point centred running average to remove some of the steps caused by the low sampling rate. This introduces a non-linearity which is offset to some extent by averaging the pre-smoothed, lagged parameters over 10 dbar intervals before calculation of derived parameters. For all stations the processing left few density inversions in the 10 dbar averages. Salinity profiles still contain spurious spikes, particularly at the base of the mixed layer. Spikes are caused in the calculated salinity values (by mismatch in the temperature and conductivity sensor time constants) at temperature inversions, subsurface mixed layers, and steps in temperature and/or conductivity. In most cases no attempt has been made to remove these spikes. They drastically alter the upper part of the temperature salinity curve in many instances from its true shape. Deeper than the mixed layer, spikes are a useful indicator of real changes, eg temperature inversions, accompanied by real salinity changes, which are exaggerated in the spikes.

### VCTOD data format

The VCTOD data are given in the form of plots and listings of parameters with pressure. A listing of the Niskin/Nansen sample bottle values for each station is given after the VCTOD data listings. The plots are drawn from averages of parameters over 10 dbar pressure intervals. Listings show 10 dbar averages spaced at selected intervals, with the pressure interval centred around the given pressure value.

From left to right the values in the listings are pressure, depth, temperature, salinity, sigma-t, anomaly of specific volume, geopotential anomaly, sound speed, potential temperature, number of observations in the 10 dbar interval, and standard deviation of temperature, then standard deviation of conductivity values for the 10 dbar interval. For example see page 74.

THE WINTER SURVEY DATA ARE PRESENTED IN TWO PARTS.

PART A PRESENTS WINTER DATA FOR ROUTE A OF FIGURE 1 (SEE PAGE 2)

ROUTE A WAS COVERED BY SURVEY SEAMAP 6 IN JULY TO SEPTEMBER 1987

PART B PRESENTS WINTER DATA FOR ROUTE B OF FIGURE 1 (SEE PAGE 2)

ROUTE B WAS COVERED BY TWO SURVEYS :-

SURVEY SEAMAP 2 IN AUGUST TO SEPTEMBER 1985 (PAGES 89 TO 144)

SURVEY SEAMAP 4 IN AUGUST TO SEPTEMBER 1986 (PAGES 145 TO 187)

TEXT AND FIGURES ARE INTERSPERSED, WITH NANSEN AND VCTOD DATA TABLES AND PROFILES COMING AFTER THE FIGURES AND TEXT FOR EACH SURVEY.

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**PART A - WINTER SURVEY FOR SEAMAP SOUTH PACIFIC ROUTE A****Data for survey six (RANRL 12/87) - route A - winter**

Part A presents data for a survey made in southern hemispheric winter around the circuit Sydney - Auckland - Tonga - Samoa - Whangarei - Fiji - Sydney from 28 July to 25 September 1987 (figure 6). Acoustic and geophysical data for the survey are given in other sources (see Appendix II). The survey, designated as RANRL 12/87, and SEAMAP 6, was the sixth and final cruise of the SEAMAP series made by Maritime Systems Division on the naval oceanographic research vessel HMAS Cook. For details of the summer counterpart of this survey, SEAMAP 3 (RANRL 1/86), see the summer report (Hamilton and Boyle, 1989). The survey route was covered in five legs (see figures 6, 17, 28, and 39 for the track plots for each leg). An XBT section along part of route A was also made during SEAMAP 2 (see pages 92, 112, 113).

Text continued on page 20



2



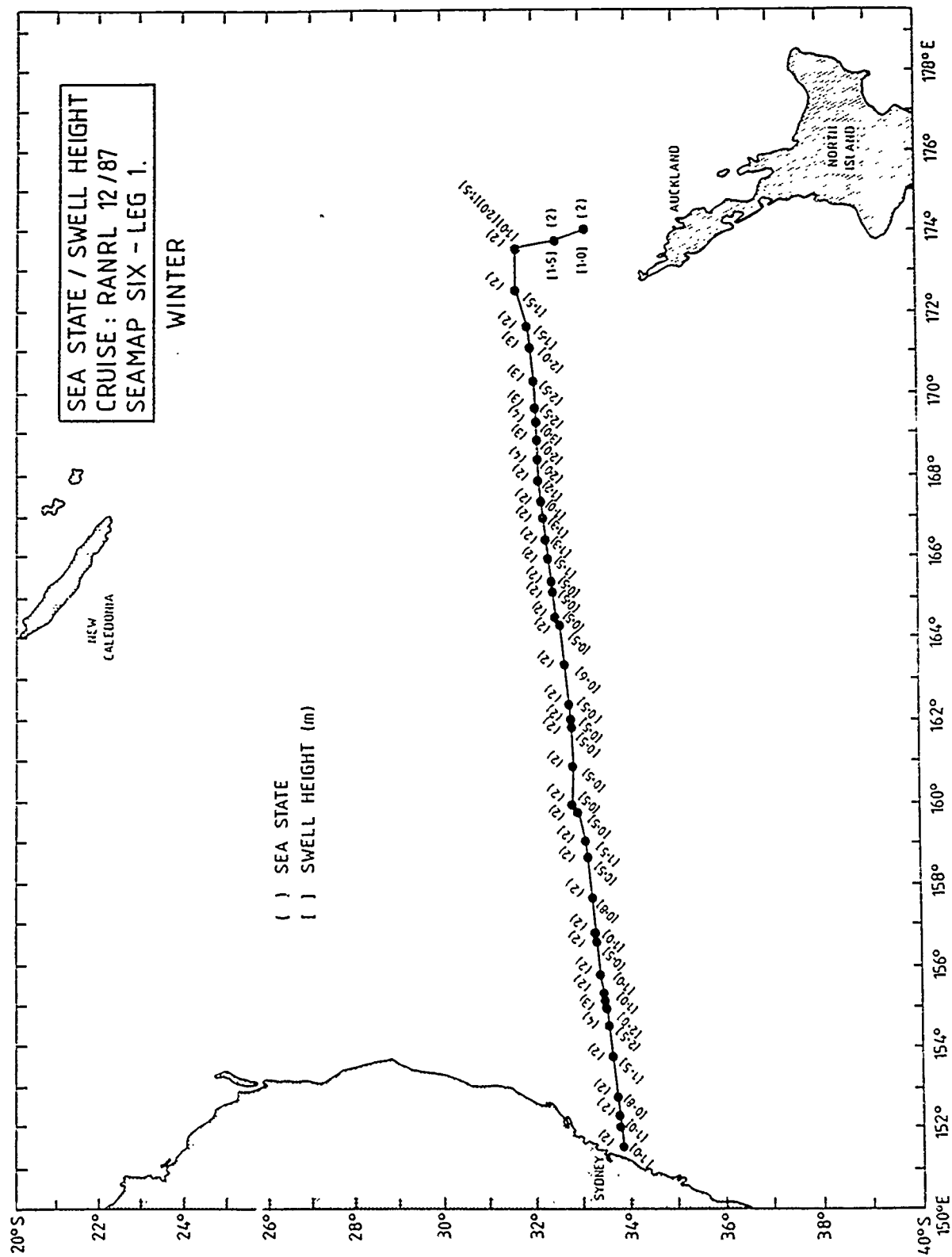


Figure 7. Sea state and swell height for SEAMAP route A in winter 1987 on survey SEAMAP 6 (RANRL 12/87). Leg one 28 July to 6 August 1987

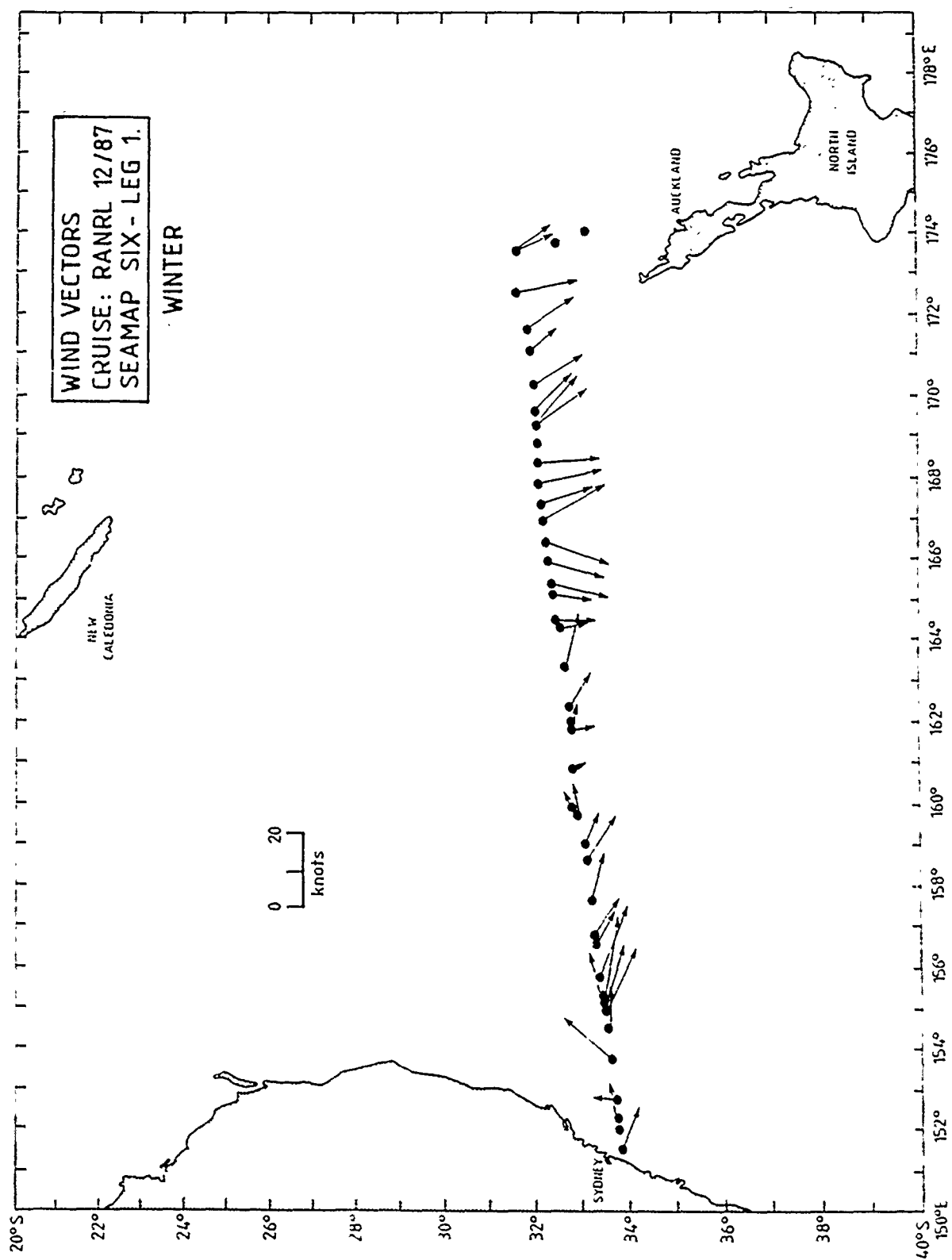


Figure 8. Wind vectors for SEAMAP route A in winter 1987 on survey SEAMAP 6 (RANRL 12/87).  
Leg one 28 July to 6 August 1987

### *Surface parameters*

#### *Sea state, swell height, and wind vectors*

Four-hourly observations made by bridge watchkeepers are shown in figures 7 and 8, 18 and 19, 29 and 30, 40 and 41 for the various legs of the cruise, being a subset of hourly observations. Table 1 (on page 5) shows the sea conditions associated with the sea state values. Wind strengths for the entire survey were seldom over 20 kn, and usually less than 15 kn. Twenty knot winds were experienced north of New Zealand on leg 5, with sea state 5, corresponding to moderate to rough seas. A period of rough seas also occurred north-east of New Zealand about 31°S, 180°. Three metre swells were seldom if ever exceeded, with swell for large parts of the cruise being less than 2 m. Away from New Zealand seas were occasionally moderate and usually smooth to slight. Calm glassy seas were encountered north-west of Lord Howe Island to north-west of Norfolk Island.

#### *Surface temperature and salinity*

##### *Sea Surface Temperature (SST) (figures 9, 20, 31 and 42)*

Highly speculative sea surface temperature (SST) contours can be drawn along the sections. SST infra-red imagery from CSIRO Aspendale Victoria is available for areas near the Australian coastline for 1 Aug (figure 12). The imagery shows an eddy east and south-east of Jervis Bay, with the Tasman Front leaving the coast farther north at 33°S, 152°E and sloping to the south-east. This corresponds with the position of a front crossed by HMAS COOK at 33°30'S, 154°30'E during leg 1. Leg 5 shows the only other marked surface fronts, in the region from Sydney to north-east of Lord Howe Island, with a frontal area also about 27°S, 166°E. The frontal areas will be further discussed when the XBT sections are examined. Sea surface temperature products from Royal Meteorological Centre (RMC) Wellington for the period of this cruise are shown in figures 11 and 33.

##### *Sea Surface Salinity (figures 10, 21, 32 and 43)*

Lowest surface salinities for the open sea (35.18 PSU) were observed near Samoa, in association with the higher temperatures at these low latitudes. (The lowest salinity of all was 34.996 in Hauraki Gulf, after Auckland, presumably associated with fresh water dilution.) Highest salinities (35.80) were observed along 30°S north-east and north-west of New Zealand (associated with an excess of evaporation over precipitation at these latitudes eg, Wyrski, 1962). High salinity also occurred about 27°S, 165°E. See Donguy and Henin (1977) for similar results. A T-S curve of the surface values (figure 50) highlights some of these results. Because of the north-south temperature gradation, the surface T-S plot is roughly equivalent to a plot of salinity with latitude. The maximum salinity values are spread due to latitudinal variations over the traverse area.

Text continued on page 27

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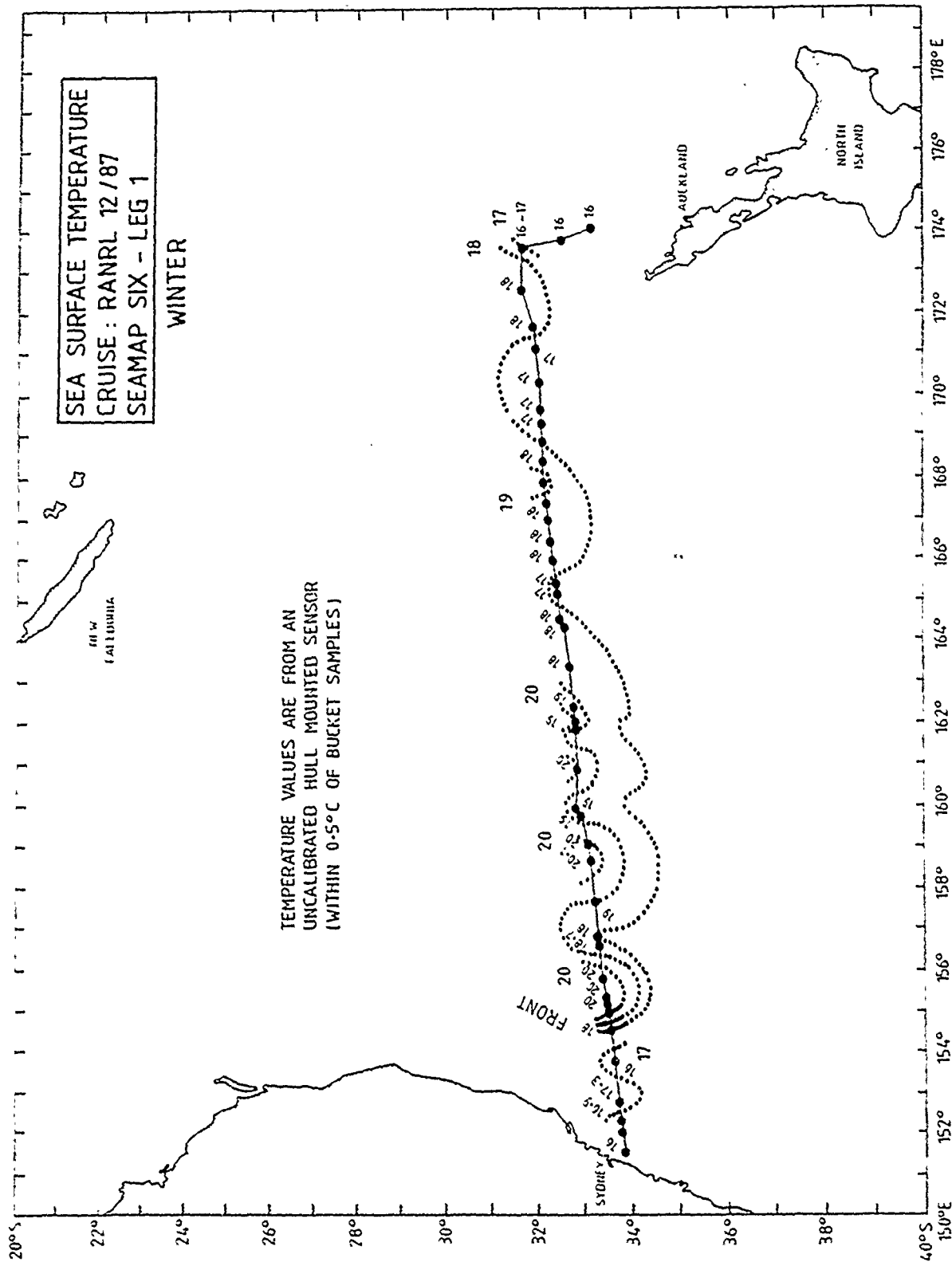
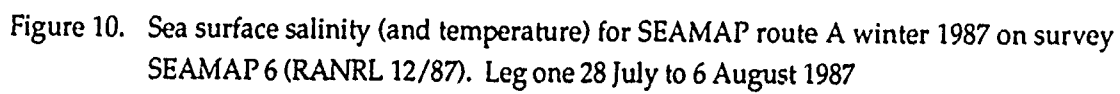


Figure 9. Speculative sea surface temperature contours for SEAMAP route A in winter 1987 on survey SEAMAP 6 (RANRL 12/87). Leg one 28 July to 6 August 1987



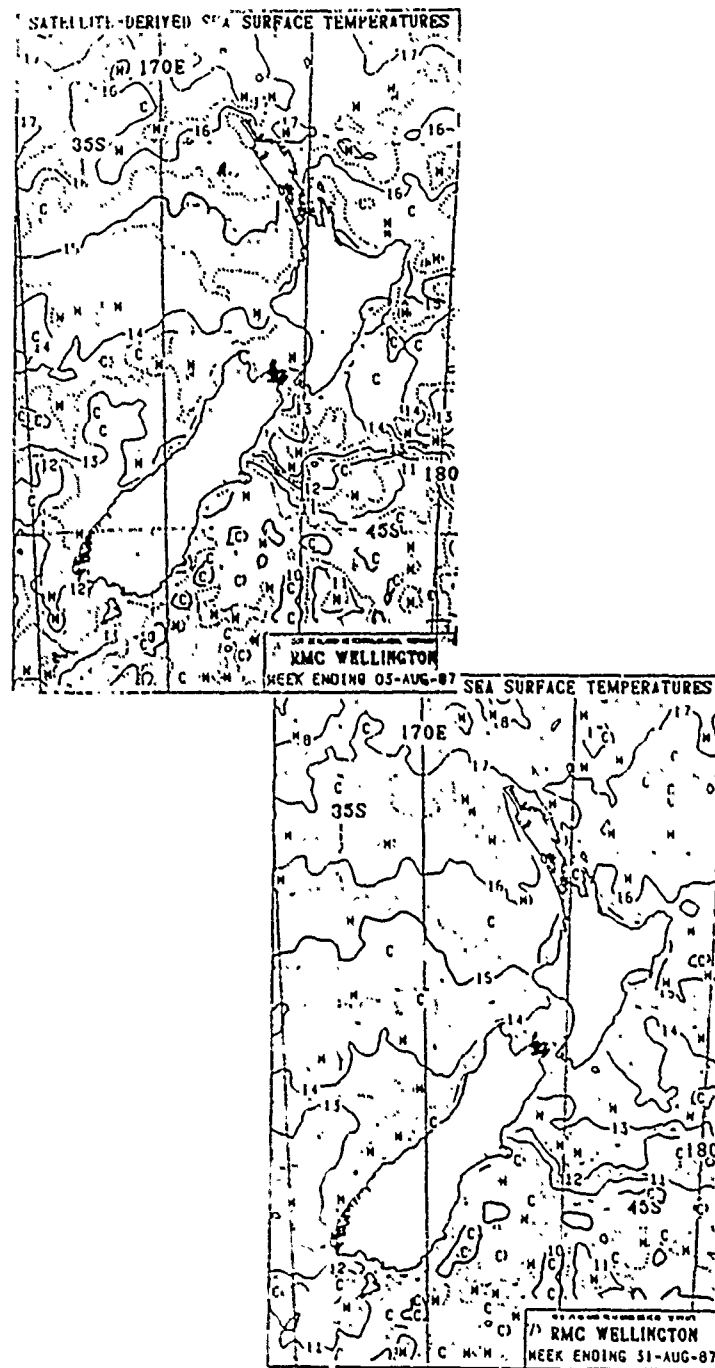


Figure 11. Sea surface temperature contours derived by Royal Meteorological Centre Wellington, New Zealand from satellite data for 3, 31 August 1987 coinciding with sections of SEAMAP 6 winter survey (RANRL 12/87) route A, Leg one

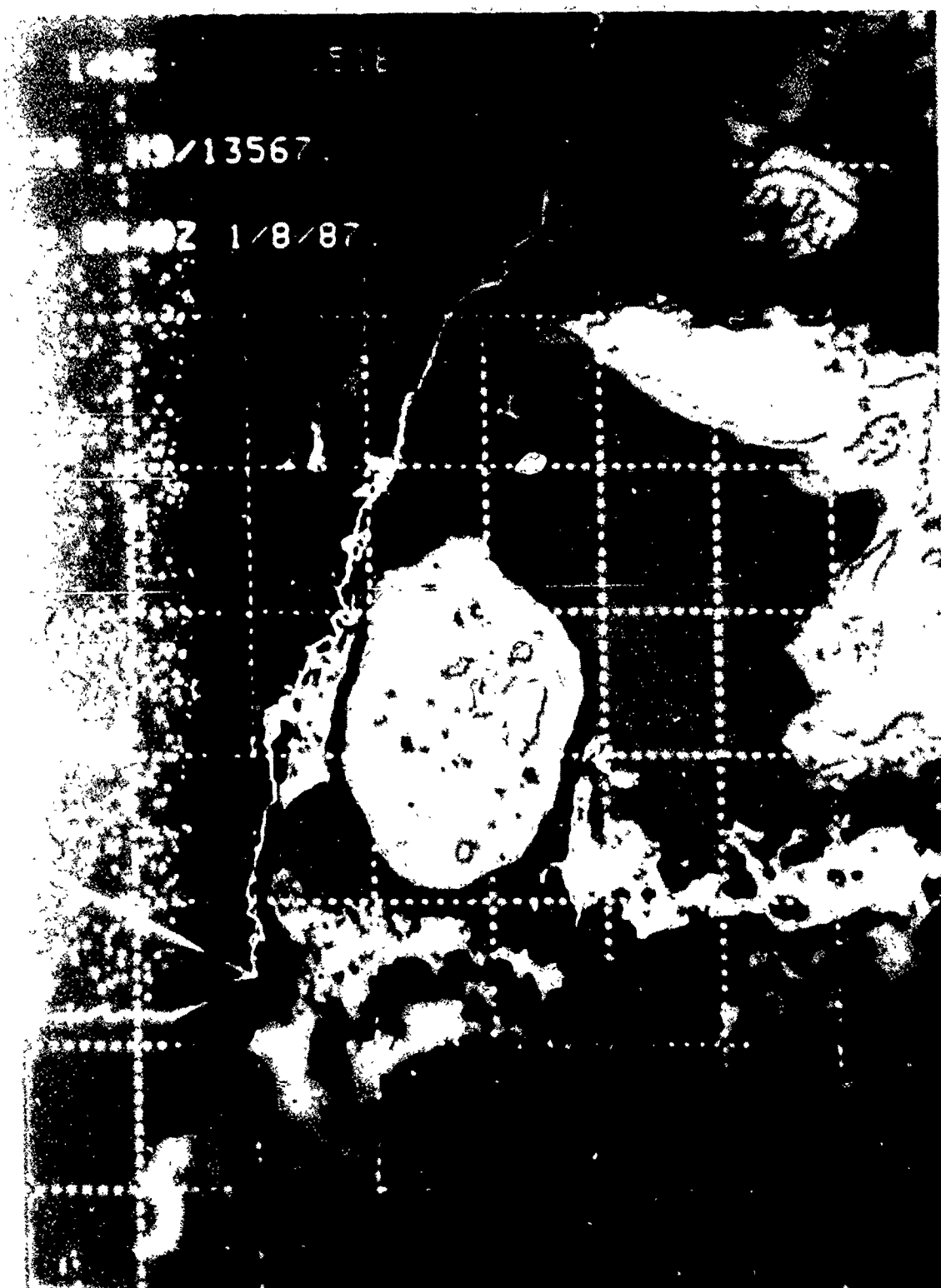


Figure 12. Sea surface temperature false colour satellite imagery from CSIRO Division of Atmospheric Research, Aspendale Victoria for 1 August 1987 coinciding with sections of SEAMAP 6 winter survey (RANRL 12/87) route A, leg one



### *Subsurface parameters*

#### *Bathymetry*

Smoothed interpretations showing major features are shown in figures 14, 22, 25, 35, 45 and 47. These have generally been drawn to correspond with XBT or VCTOD cross-sections, and are generally placed facing the cross-section.

#### *XBT/Nansen/VCTOD cross-sections*

##### *XBT temperature cross-sections*

Cross-sections of XBT data are shown in figures 13, 22, 24, 34, 36, 44 and 46. Gaps in the sections were caused by periods of seismic profiling, when XBT wires would have fouled the towed streamer (or eel).

##### *Sydney to New Zealand (figure 13) (leg 1)*

The East Australian Current is crossed near 155°S, being situated west of Taupo Bank. A second broader warm core meander is situated on the western flank of the Lord Howe Rise, centered on the enclosed trough between the Rise and Dampier Ridge. A minor warm feature at 162° 30'E appears to be sited on a depression to the west of the highest parts of the Rise. A warm feature is sited west of Three Kings Ridge at 172°E, which has SST of 18 to 19°C. (The locations of these features are indications of the influence of topography on the flow of the Tasman Front.)

##### *Auckland to 30°S, 170°30'W (figure 22) (leg 2)*

The section is not of high quality, but does show indications of flow to the east or south-east between 35 and 36°S. At 31°S, 179°E a warm feature is crossed, sited on the western side of Colville Ridge. Warmer waters at 30°S, 170°W appear to have little significant subsurface expression, but this cannot be confirmed.

##### *From 30°S, 170°W to SAMOA (via TONGA AND 20°S, 179°30'W) (figure 24)*

This incomplete section shows a warm feature at 25°S, associated with weak surface fronts, indicating eastward flow, with some recirculation north of 25°S. Surface flow from Tonga to 30°S, 170°W appears to be mainly eastward and diffuse. Flow south of Samoa may also be eastwards at the surface.

Text continued on page 30

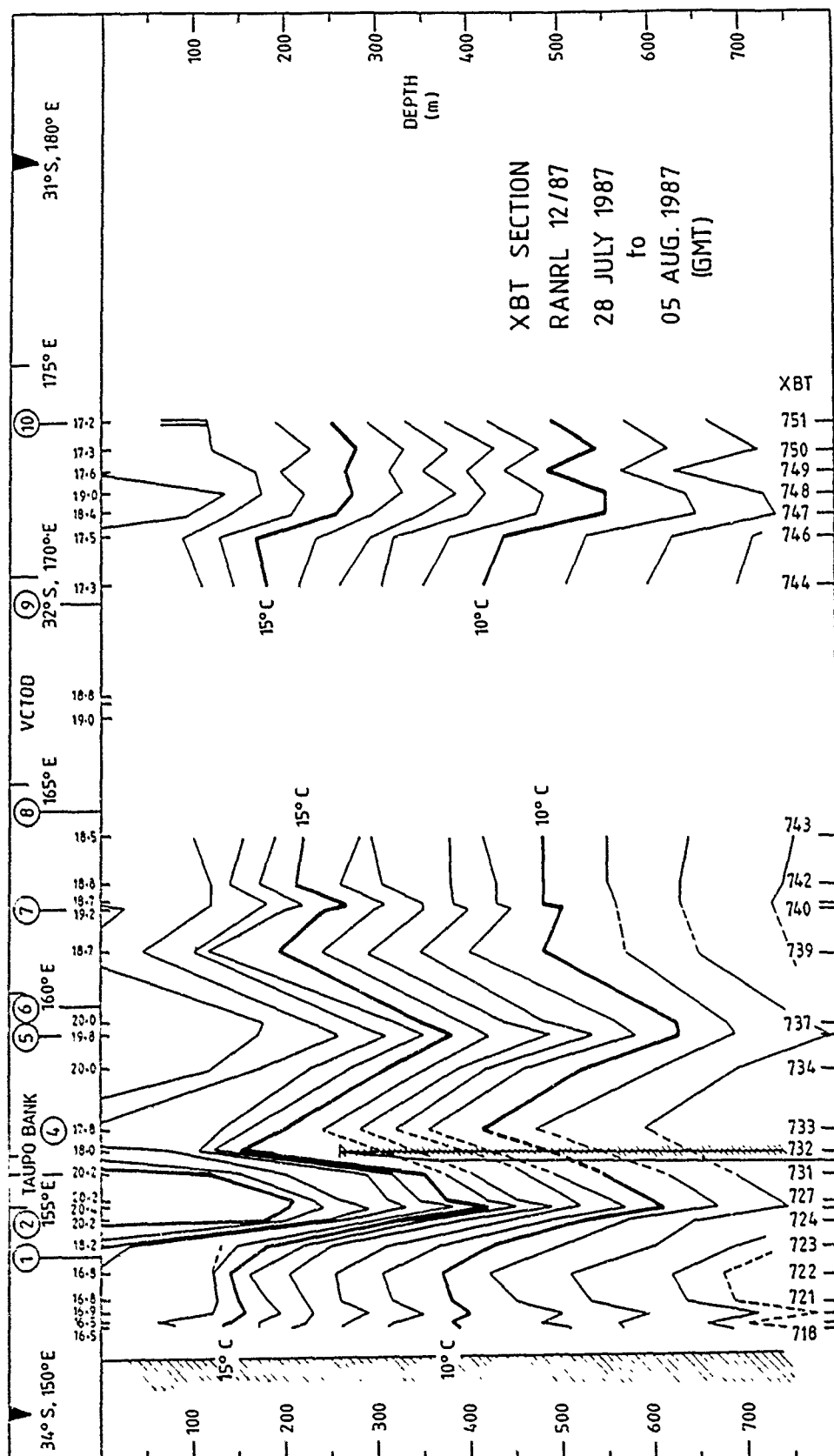


Figure 13. XBT temperature section from Sydney to station 10 (31°41'S, 173°30' E) for 28 July to 5 August 1987. Winter survey SEAMAP 6 (RANRL 12/87) route A, leg one. (See figure 22 for a continuation of this section to station 14). Leg one

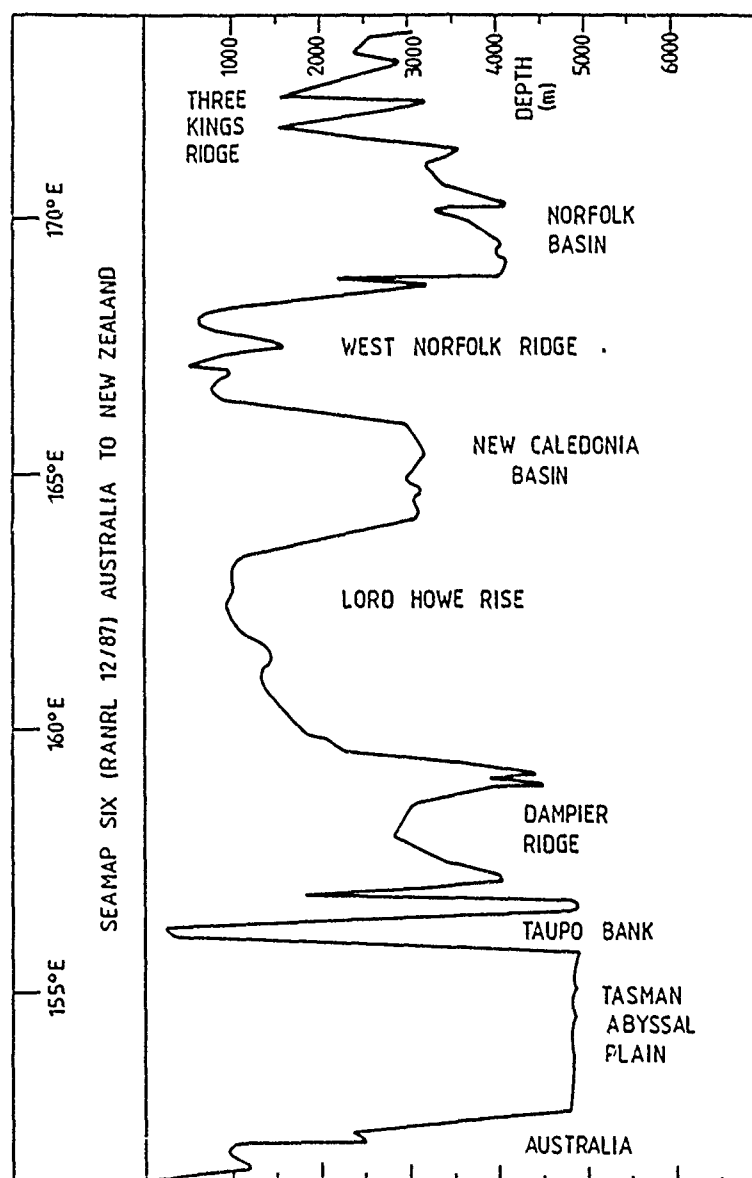


Figure 14. Bathymetry from Sydney to station 10. Winter survey SEAMAP 6 (RANRL 12/87) route A, leg one

#### Samoa to Whangarei (figure 34)

This section confirms some observations made for the section from New Zealand to Samoa. South of Samoa there appears to be surface flow to the east to 150 m. Eastward flow is seen on the continental slope north of New Zealand. Surface flow generally appears eastward. Currents over the section appear to be weak except south of Samoa and north of New Zealand.

#### Fiji to 23°S, 177°E (figure 36)

This section was made on a detour to Fiji not scheduled as part of the cruise. Flow at 20°S appears eastward to about 250 m. Flow below 250 m then becomes westward.

#### Whangarei to waypoint D (leg 5) (figure 44)

This section again shows eastward flow components on the New Zealand continental slope. A warm feature is situated at waypoint C, with waypoint D also showing plunging isotherms. Sea surface temperature contours (figure 42) show these to be meanders of a south-eastwards flow sited north and east of Norfolk Island. Several drifting buoy tracks (figure 49) confirm the general eastwards flow for the section.

#### Waypoint D TO Sydney (figure 46)

Several meanders are crossed from waypoint D to Sydney. Warm features are seen west of Dampier Ridge, on the western flank of the Lord Howe Rise, and on the eastern flank of the Rise. The strongest feature is the East Australian Current meander between waypoints I and N, over the Tasman Abyssal Plain. This meander, and the feature at H have a warmer core of surface waters between their centre and western boundary. This effect is frequently seen in XBT sections in this area, and is sometimes seen on the eastern boundary also. In satellite imagery these waters appear as warmer ribbons (or rings around eddies) (eg see Nilsson and others, 1981). The general picture is that of a meandering front running from Sydney to the north-east, which can be traced by the 20°C isotherm in the sea surface temperature diagram (figure 42). The speculative SST contours north of Norfolk Island appear to pass over an opening on Norfolk Ridge. The western side of the EAC is some 200 km farther west than on leg 1, when the first meander crossed was at 155°30'E. Several drifting buoy tracks (figure 49) confirm the current directions inferred from SST contours and the XBT sections. The buoy track to the north of Lord Howe Island shows particularly good agreement with directions of SST contours.

#### VCTOD temperature and salinity sections

VCTOD temperature sections are shown in figures 15, 26, 37 and 48. Shifts and complete failures in the conductivity between stations made it impossible for any sort of good conductivity (salinity) calibration. A new inner glass sleeve had to be fitted to the

inductive salinity sensor before station 23 during the cruise, leading to a new calibration. A rosette sampler was not available to establish salinity calibrations, with the VCTOD being used as a velocimeter. The salinity profiles shown with the VCTOD data listings are expected to have the right shape, but absolute values are unknown.

#### Sydney to station 12 (figure 15)

The warm features west of Taupo Bank and Lord Howe Rise seen in the XBT sections extend to the station depth limit of 2000 m. Stations are too broadly spaced to give much further detail.

#### Station 4 to station 24 (figure 26)

The VCTOD section is much the same in spacing as the XBT section (figure 24). The 4°C isotherm is elevated between stations 11 to 15, but isotherms below 3°C are depressed.

#### *Nansen station data listings and profiles*

Nansen stations were not occupied on this cruise. At VCTOD stations 22 and 23, multiple casts to several depths were made with a single Nansen bottle on the VCTOD wire, in an attempt to get some sort of conductivity calibration. The data is not presented in this report.

#### *VCTOD station data listings and profiles*

Thirty-two VCTOD stations were occupied at sites shown in figures 6, 17, 28 and 39. Listings and profiles are given on pages 71 to 87. Temperature sections have been discussed earlier. (Note that data was not logged at station 1.) Salinity is uncalibrated.

#### Stations 2 to 15, 23, 24 (Sydney to 30°S, 170°30'W)

Surface mixed layers from 50 to 150 m (and over 200 m at station 2) were seen along this part of the route, except for mixed layers of 30 and 20 m at stations 6 and 12. The sound-speed maximum occurred at the same depth or deeper (often considerably) than the surface mixed layer depth. The shallowest sound-speed maximum occurred at station 6 (30 m), apparently in the frontal area to the eastern side of a warm core feature, all other maxima occurring at 50 m and deeper. Maximum sonic layer depth occurred in the first meander of the warm waters of the East Australian Current.

Stations 2 to 15 (except station 7) have maximum salinity at or very near the surface, as do stations 23 and 24. The exception at station 7 (162°E) is caused by cooler lower salinity surface waters associated with a temperature inversion of 0.09°C, indicating possible entrainment of coastal waters. (A similar effect was seen at 35°S, 155°E on SEAMAP 5; and at 30°55'S, 155°26'E on cruise MSD 2/87 in November 1987.) Salinities generally decrease monotonically from the surface to the Antarctic Intermediate Water (AAIW) mass salinity minimum at about 900 m, with occasional reversals.

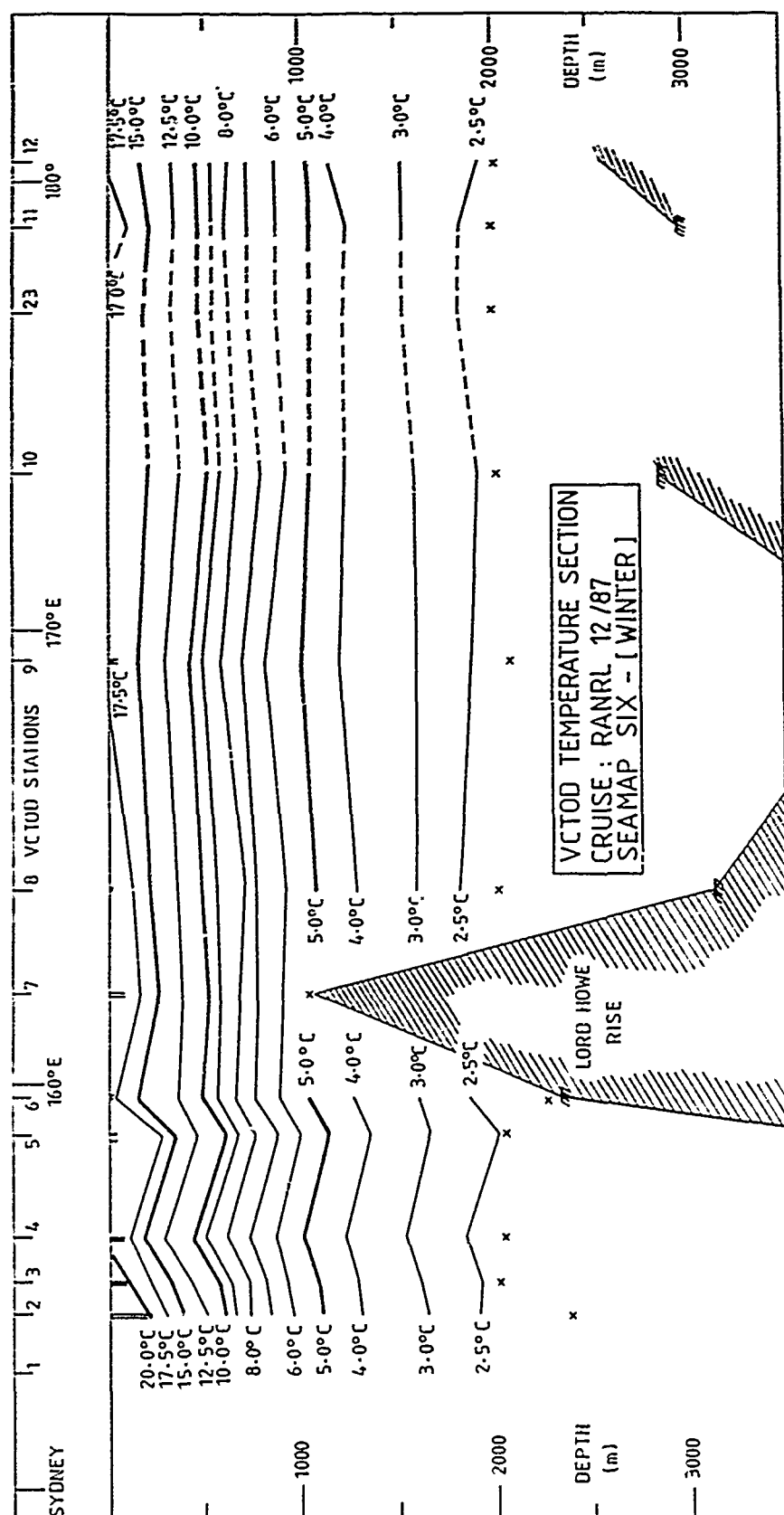


Figure 15. VCTOD temperature section to 2000 m from Sydney to station 12 (30°58'S, 179°30'W) for 28 July to 12 August 1987. Winter survey SEAMAP 6 (RANRL 12/87) route A

Several stations shown small scale temperature and salinity structure. Station 2 shows well mixed waters just above 400 m, only 5 m or so in vertical extent, with stepping and possible inversions to 450 m. Perturbations also occur as follows: station 4 at 200 m and 230 m; station 5 at 350 m, and particularly at 430 m; station 6 at 225 m, and 270 m, and perhaps 425 m; station 7 at 225 and 420 m; station 9 at 400 m, 600 m and 650 m; station 10 at 250 m, 450 m, 500 m, 725 m, 1060 m and 1120 m; station 11 at 170 m, 760 m and 980 m; station 12 at 420 m, 580 m, 930 m and 1330 m; station 14 at 320 m; station 23 at 1150 m; station 24 remains unchecked, but is only a 500 m station.

These inversions and irregularities are usually seen in both down and upcasts, but at differing depths. Some of the shallower inversions are due to Bass Strait Waters. The unexpectedly deep temperature inversions were identified in the summer cruise report (Hamilton and Boyle, 1989) as arising from meetings of the two branches of the AAIW in this area, and possibly also meetings of different parts of the same branch after diversions and splitting of flow by ridges. Deep mixing is expected to occur as a result, as can be seen in the perturbations in the salinity and T-S profiles. Flow of the AAIW is discussed in a separate report (Hamilton, 1990). Station 7 shows a bottom mixed layer formation at 1020 m, this station being situated on the western flank of the highest part of the Lord Howe Rise.

Stations 16 to 32 (except 23,24) (Samoa to Sydney)

Stations 17, 16, 20 and 22 from Samoa to south of Fiji show well mixed surface layers of 40 to 80 m. Of the remainder only stations 30 and 32 show mixed layers deeper than 10 m. (Stations 18, 26 to 29, and 31 have no mixed layer.) In several stations a sound speed maximum does exist in the absence of a well mixed layer due to the pressure of a subsurface salinity maximum, and slowly decreasing temperatures in upper waters. Sonic layer depth is deepest for the northern stations 16 to 22 (except 18 which has zero sonic layer depth) at 40 to 140 m. There is a gap in coverage between station 22 and 25. Sonic layer depth for stations 25, 28 and 29 is zero, and elsewhere is typically 40 m, with 120 m for station 27. These depths are much less than the hundreds of metres off Sydney for the southern outward leg, apparently because frontal areas are being crossed.

Several stations show small to medium scale temperature and salinity structure. Temperature inversions or perturbations are seen in station 16 at 370 m, 630 m, 800 m and 930 m; station 17 at 90 m (base of the mixed layer), 140 m, 320 m, perhaps 550 m, and for 730 to 1160 m; station 18 at 105 m and 450 m; station 19 at 460 m and 560 m; station 22 at 130 m and 250 m; station 25 at 330 m, 925 m, and perhaps 1080 m; station 26 at 800 m; station 28 at 220 m and 270 m; station 29 at 310 m and 405 m; station 30 at 420 m; station 31 at 370 m, and perhaps 540; station 32 at 160 m and perhaps 450 m.

The deep perturbations for station 16 also occurred at the same site on SEAMAP 3. The perturbations were tentatively identified in the summer report (Hamilton and Boyle, 1989) as possible evidence of splitting of flow at this depth into several paths through the Lau Ridge (and the Tongan Islands). Station 17 shows similar effects. The deep perturbations

at stations 25 and 26 are consistent with Wyrski (1962) who described different branches of the Antarctic Intermediate Water (AAIW) mass entering the Tasman Sea. One branch penetrates from the south, and the other from between Fiji and New Zealand from around the Chatham Rise east of New Zealand. These perturbations are apparently caused by meetings and mixing of waters from these different branches of the AAIW. See Hamilton (1990) for further discussion.

#### *Currents*

Surface current directions inferred from SST and XBT data are shown in figures 16, 27, 38 and 49 with tracks of satellite tracked drifting buoys (DRIBU data) (France Meteorologie Nationale).

#### *Additional data*

Tracks of vessels deploying XBT in the CSIRO merchant ship programme have not been ascertained.

Text continued on page 36



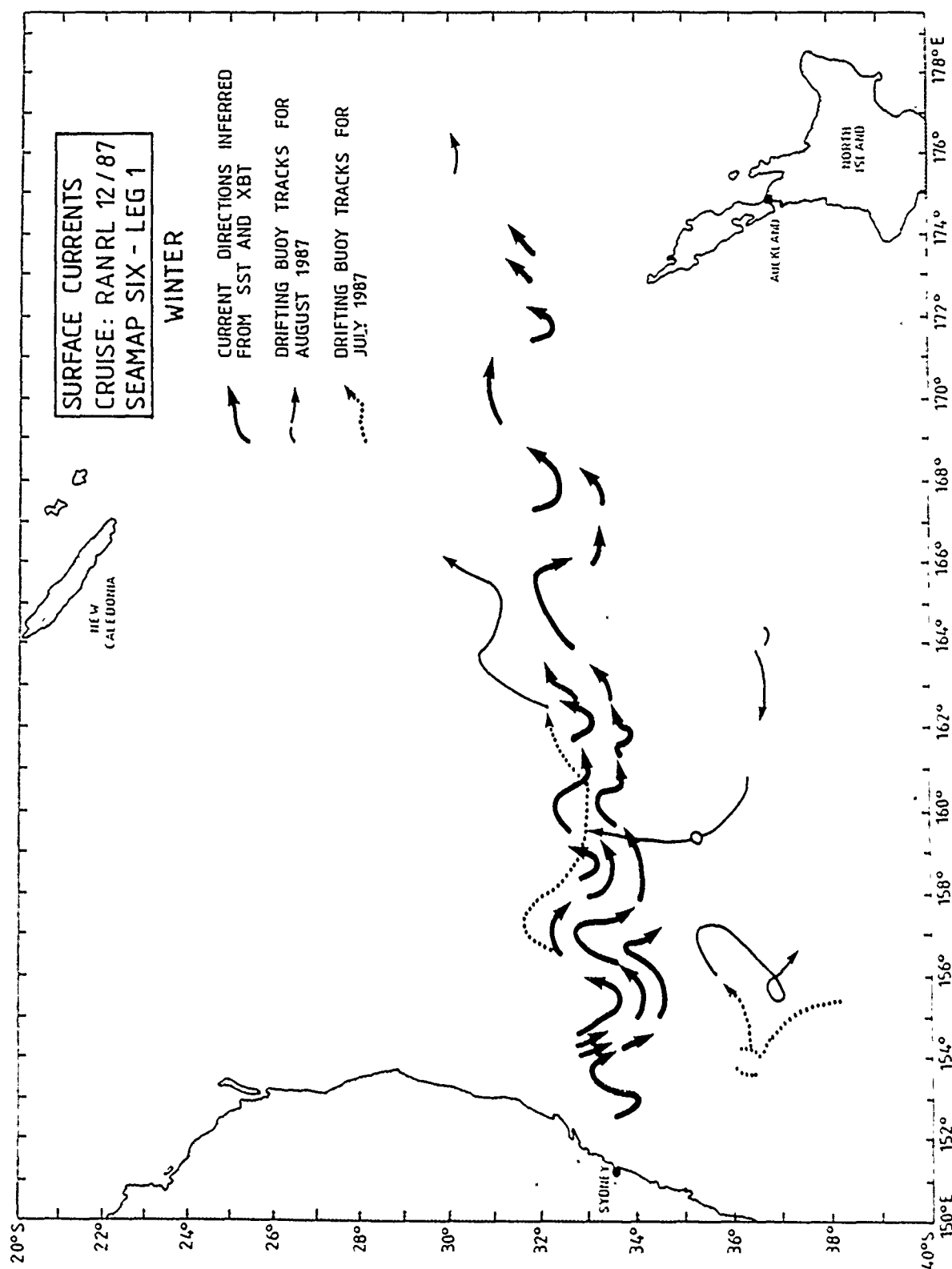


Figure 16. Surface current directions inferred from VCTOD, XBT, and sea surface temperature data. Winter survey SEAMAP 6 (RANRL 12/87) route A, leg one 28 July to 6 August 1987. Leg one

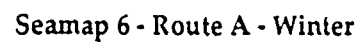
WINTER SURVEY SEAMAP 6 (RANRL 12/87) - ROUTE A

THE DIAGRAMS FOR LEGS 2 AND 3, LEG 4, AND LEG 5 ARE PRESENTED ON FOLLOWING PAGES 37 TO 71.

THESE ARE FOLLOWED BY LISTINGS OF VCTOD DATA ON PAGES 72 TO 87.

THE CRUISE TRACK FOR LEG ONE IS ON PAGE 17.  
THE CRUISE TRACK FOR LEG TWO IS ON PAGE 37.  
THE CRUISE TRACK FOR LEG THREE IS ON PAGE 37.  
THE CRUISE TRACK FOR LEG FOUR IS ON PAGE 48.  
THE CRUISE TRACK FOR LEG FIVE IS ON PAGE 61.

Text continued on page 49



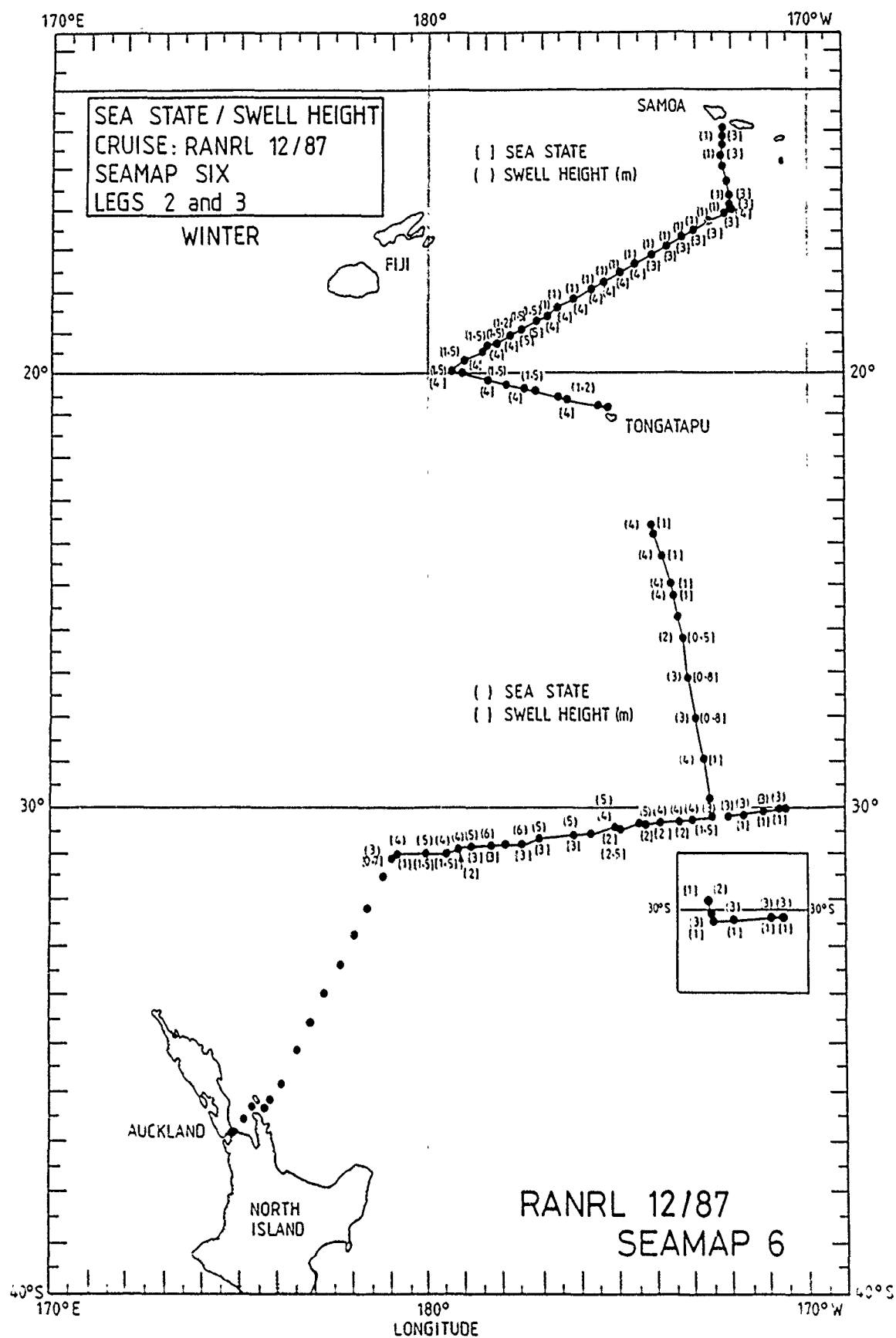


Figure 18. Sea state and swell height for SEAMAP route A in winter 1987 on survey SEAMAP 6 (RANRL 12/87). Legs two and three 11 to 25 August 1987

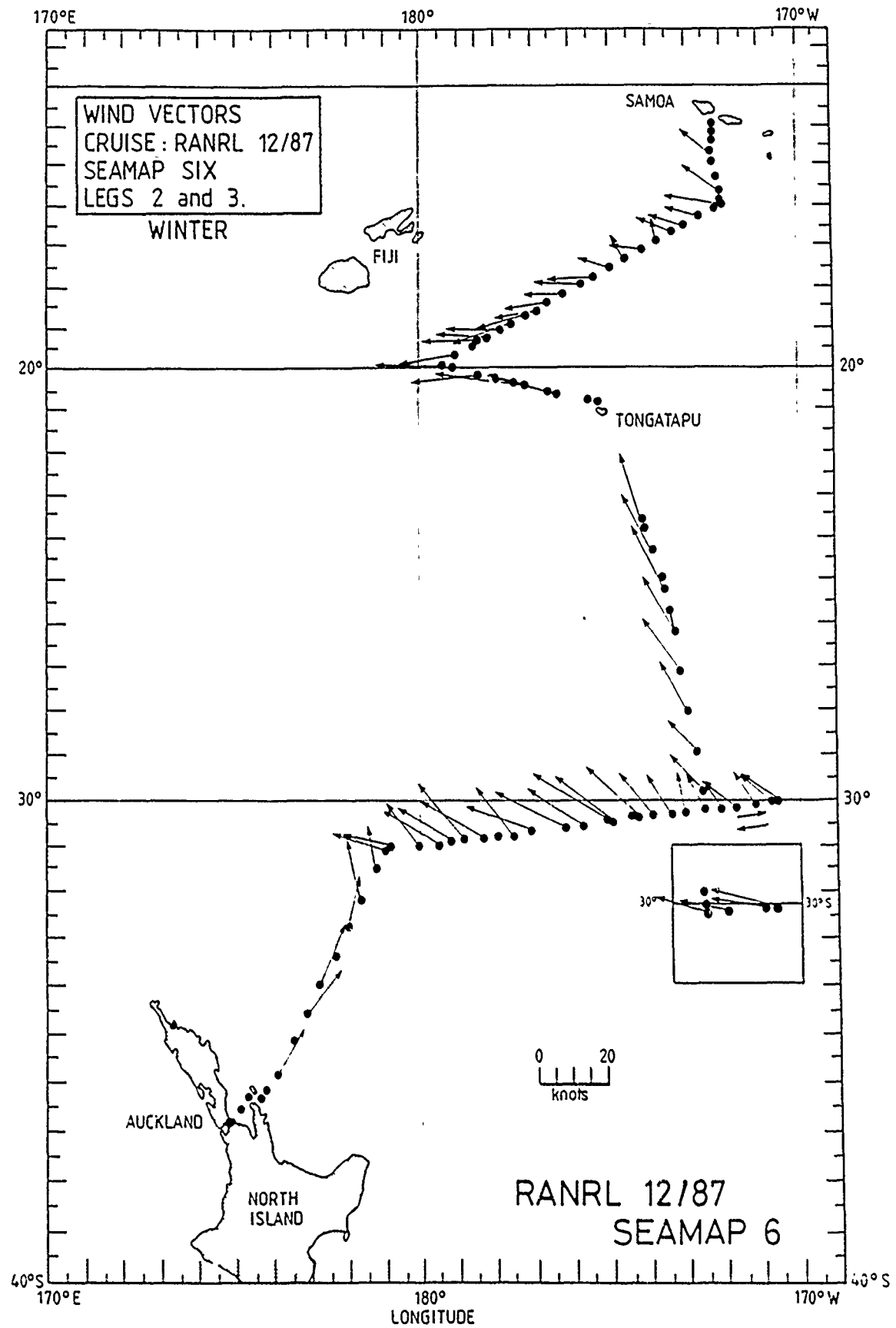


Figure 19. Wind vectors for SEAMAP route A in winter 1987 on survey SEAMAP 6 (RANRL 12/87). Legs two and three 11 to 25 August 1987

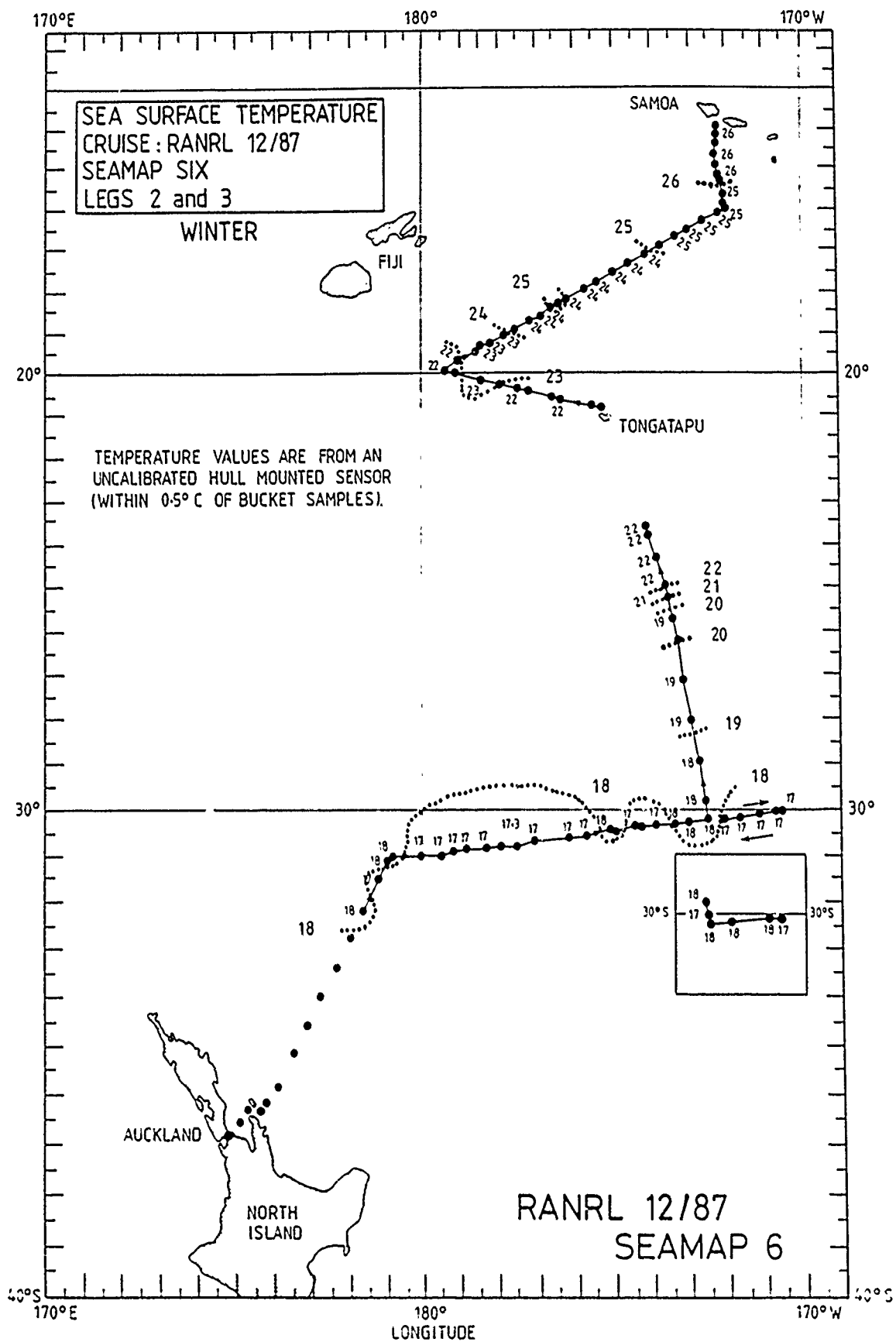


Figure 20. Sea surface temperature for SEAMAP route A in winter 1987 on survey SEAMAP 6 (RANRL 12/87). Legs two and three 11 to 25 August 1987



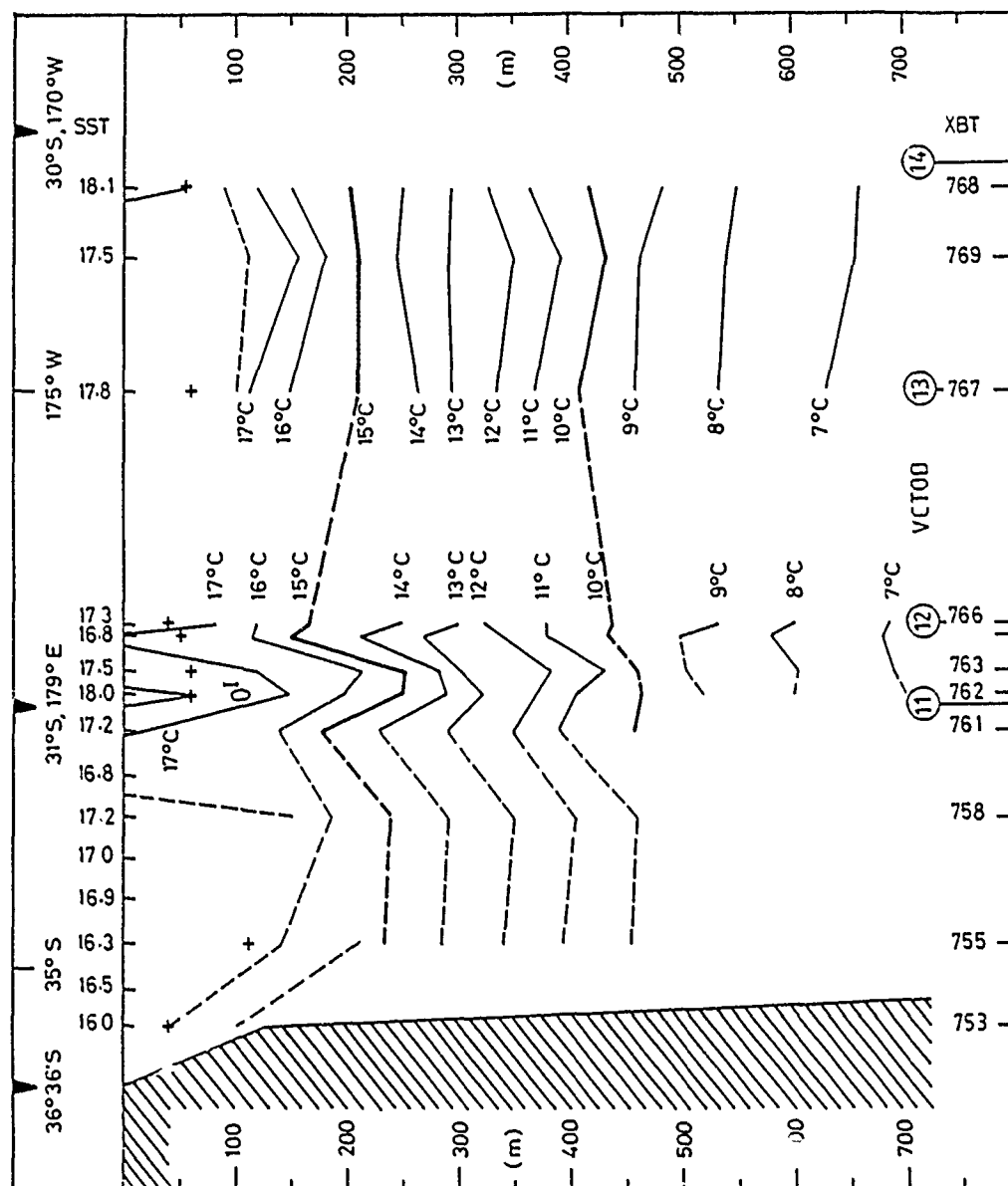


Figure 22. XBT temperature section from Auckland to station 14 (30°S, 170°30' W) for 11 to 6 August 1987. Winter survey SEAMAP Six (RANRL 12/87) route A, legs two and three





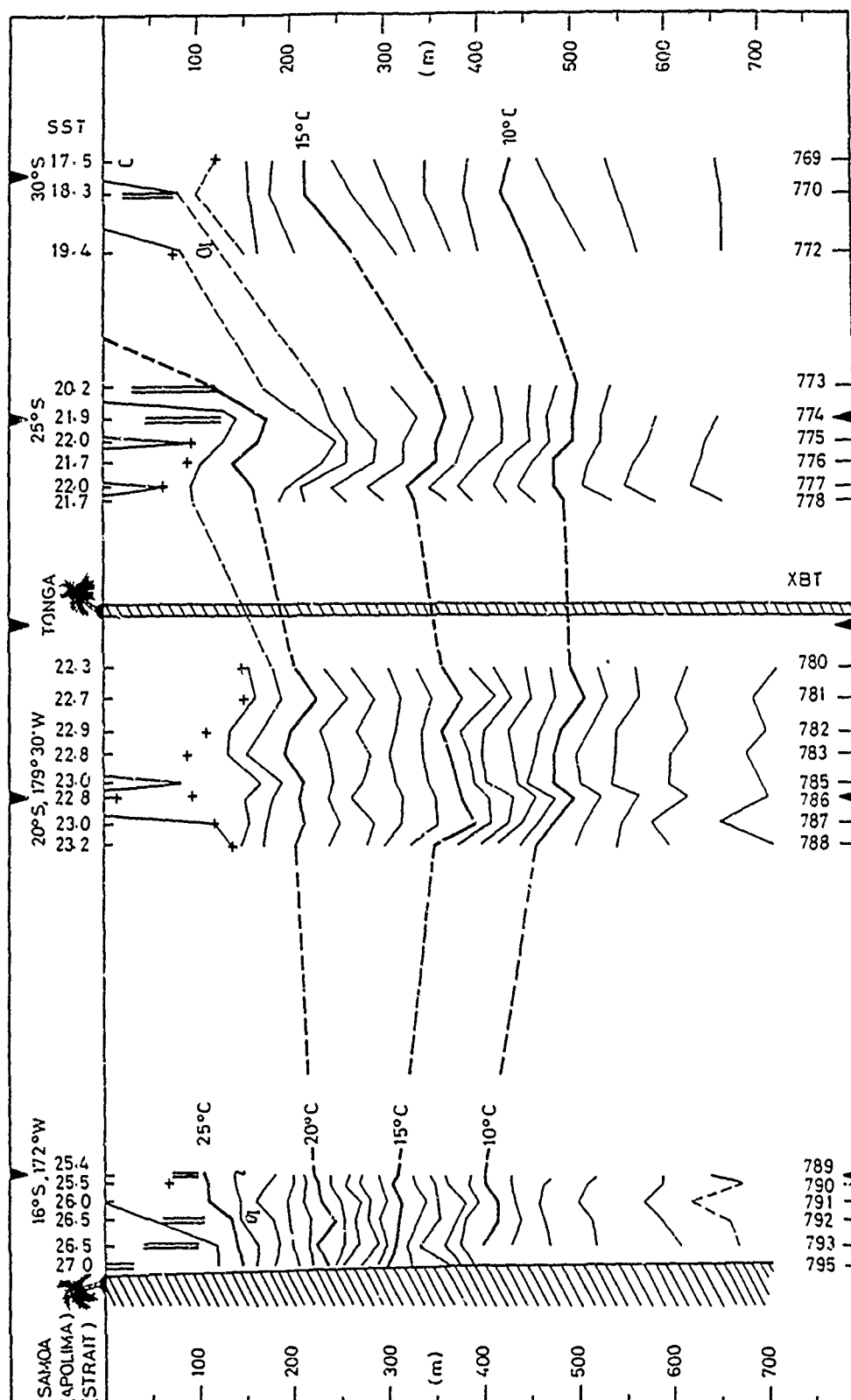


Figure 24. XBT temperature section from waypoint C (station 15) to Samoa for 16 to 25 August 1987. Winter survey SEAMAP 6 (RANRL 12/87) route A. Legs two and three

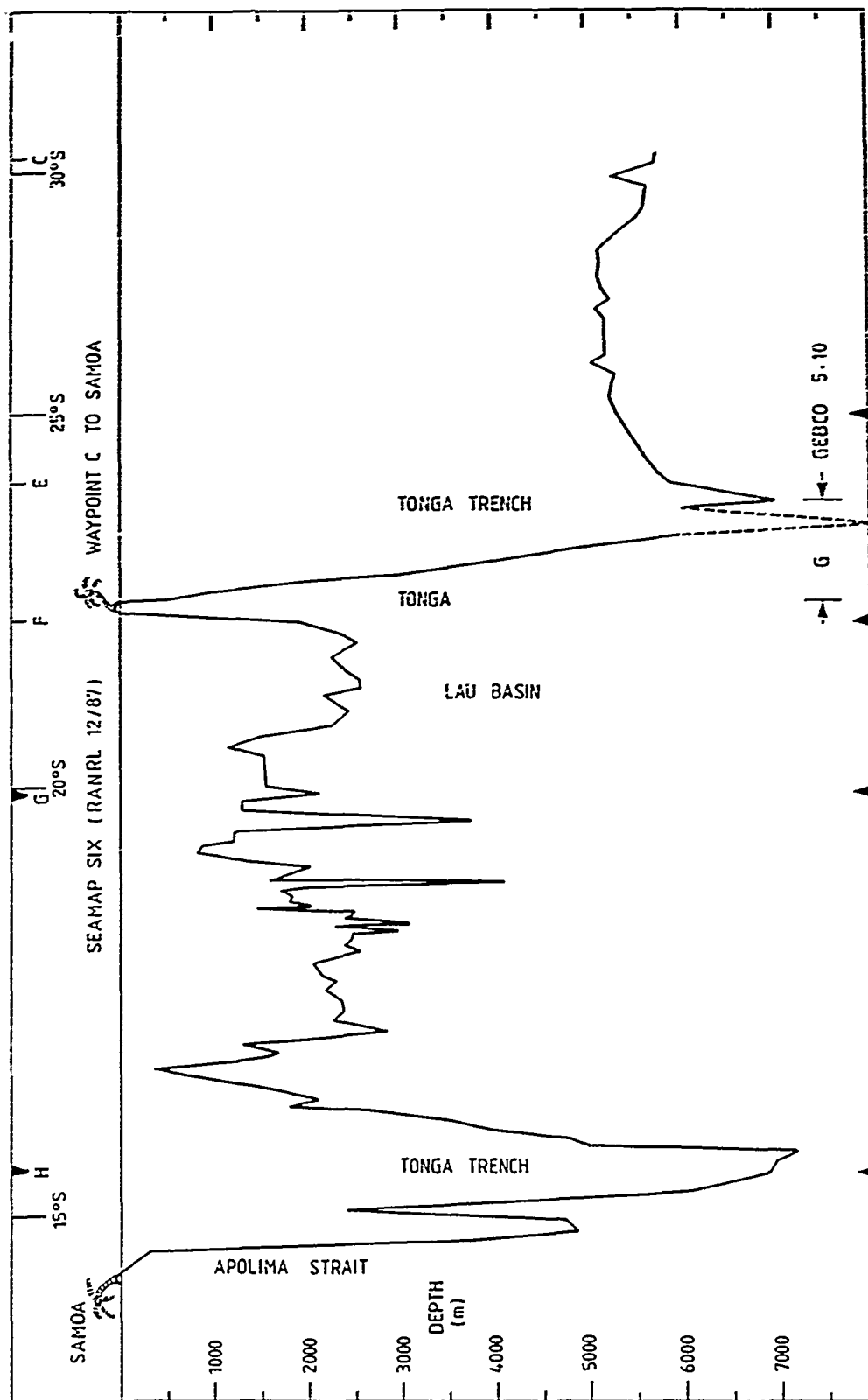


Figure 25. Bathymetry from waypoint C (station 15) to Samoa for 16 to 25 August 1987.  
Winter survey SEAMAP 6 (RANRL 12/87) route A. Legs two and three

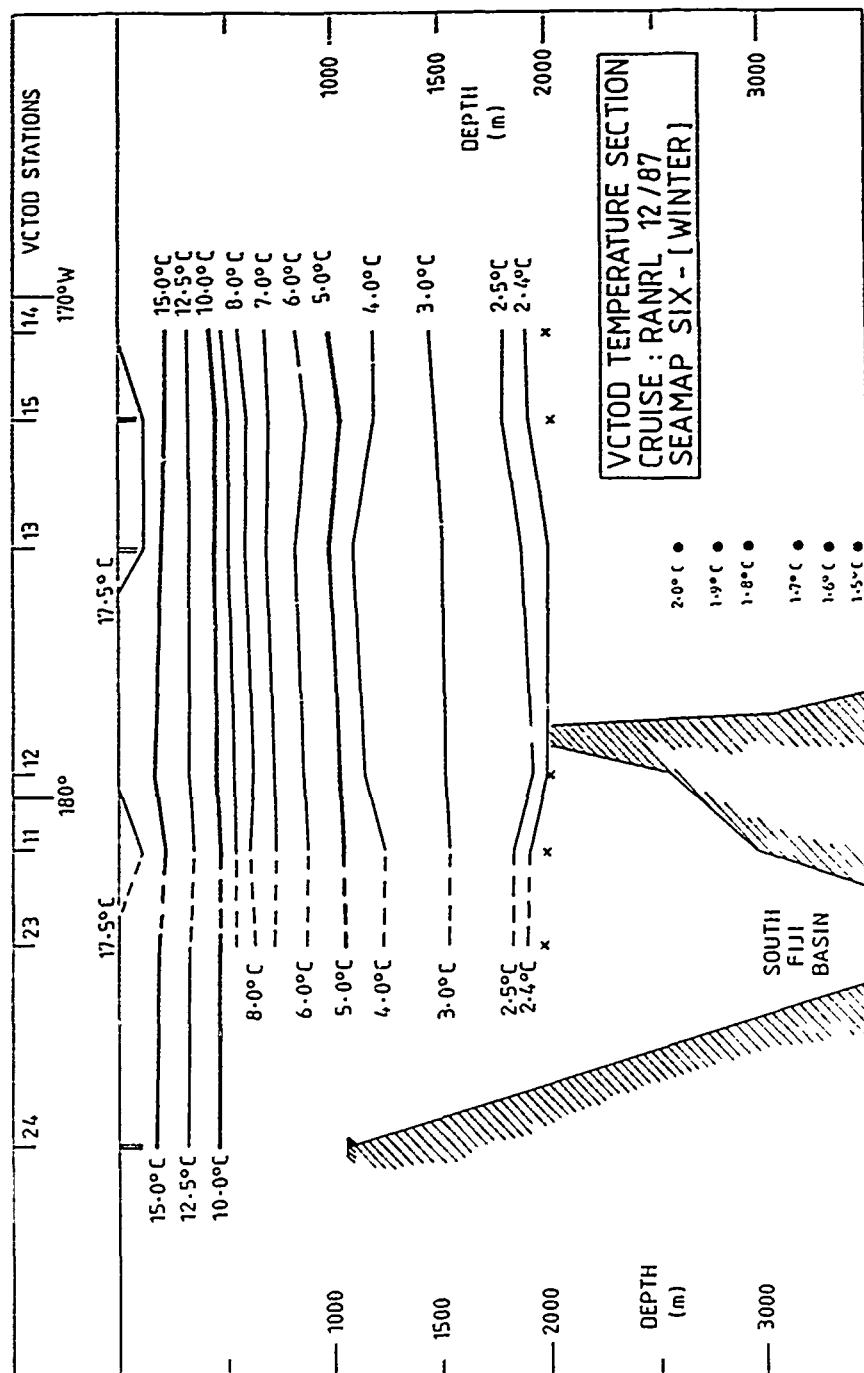


Figure 26. VCTOD temperature section from station 24 (north-east of New Zealand) to station 14 (30°S, 170°30'W). See figures 17 and 28 for station locations

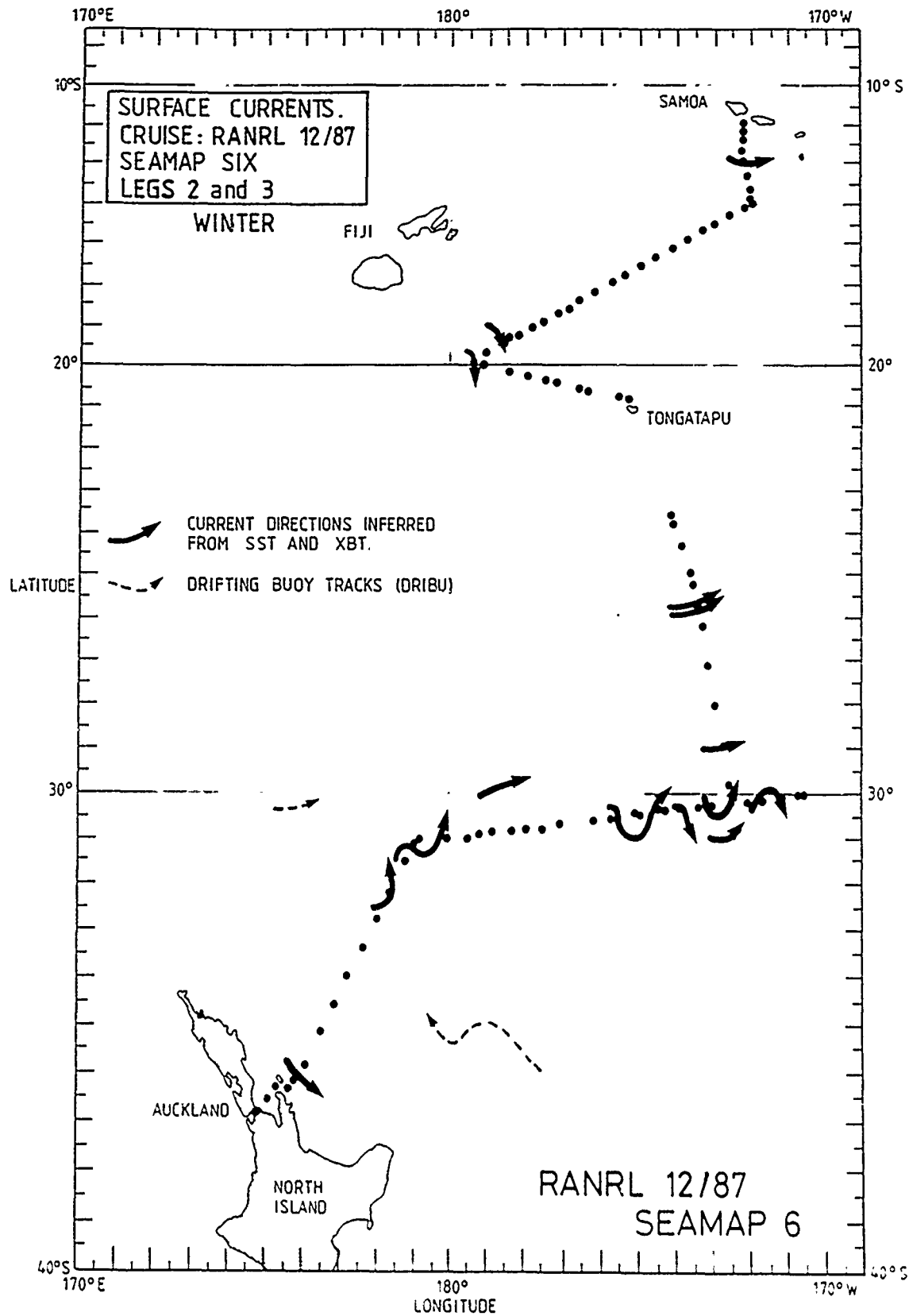


Figure 27. Surface current directions inferred from VCTOD, XBT, and sea surface temperature data. Winter survey SEAMAP 6 (RANRL 12/87) route A, Legs two and three

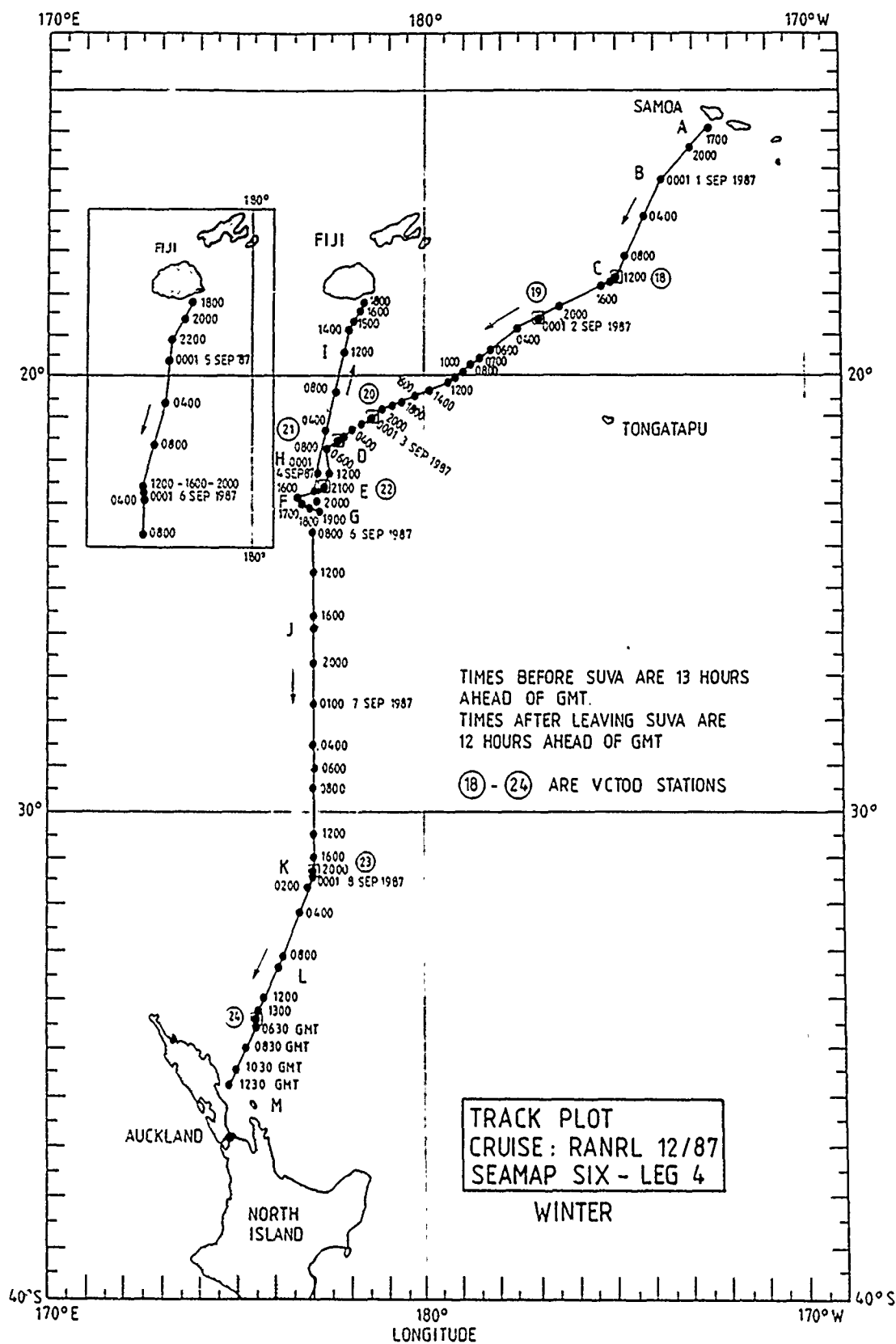


Figure 28. Track plot and oceanographic station positions for SEAMAP 6 (RANRL 12/87) winter survey on route A in the south west Pacific Ocean, 31 August 1987 to 8 September 1987. Leg four

DIAGRAMS FOR LEGS 5 AND 6 OF WINTER SURVEY SEAMAP 6 FOLLOW ON PAGES 50 TO 72.

A SURFACE SAMPLE TEMPERATURE - SALINITY SCATTER PLOT IS SHOWN ON PAGE 72.

THE DIAGRAMS ARE FOLLOWED BY VCTOD DATA LISTINGS AND PROFILES FOR THE FULL SURVEY ON PAGES 73 TO 88.

Text continued on page 73

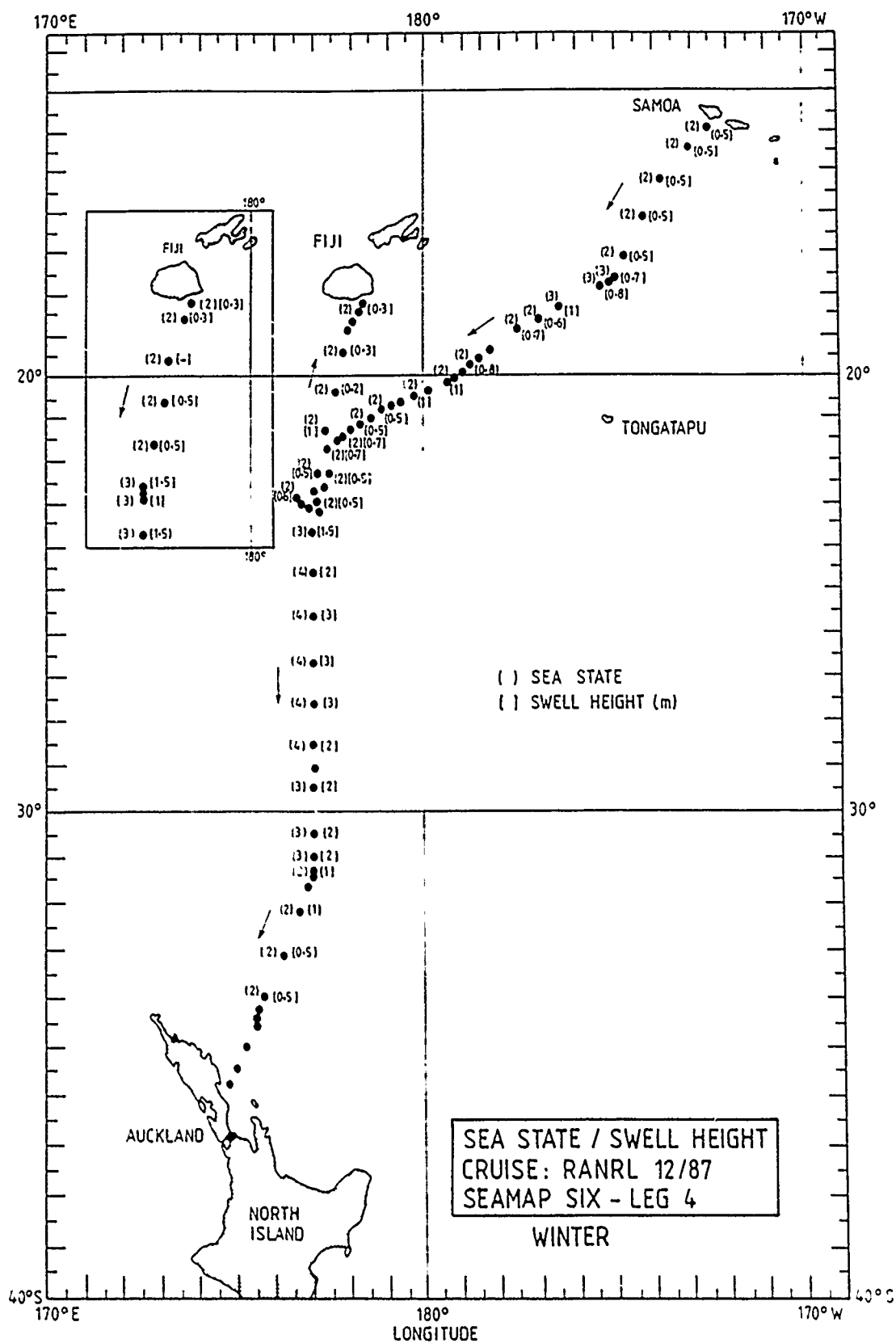


Figure 29. Sea state and swell height for SEAMAP route A in winter 1987 on survey SEAMAP 6 (RANRL 12/87). Leg four 31 August 1987 to 8 September 1987



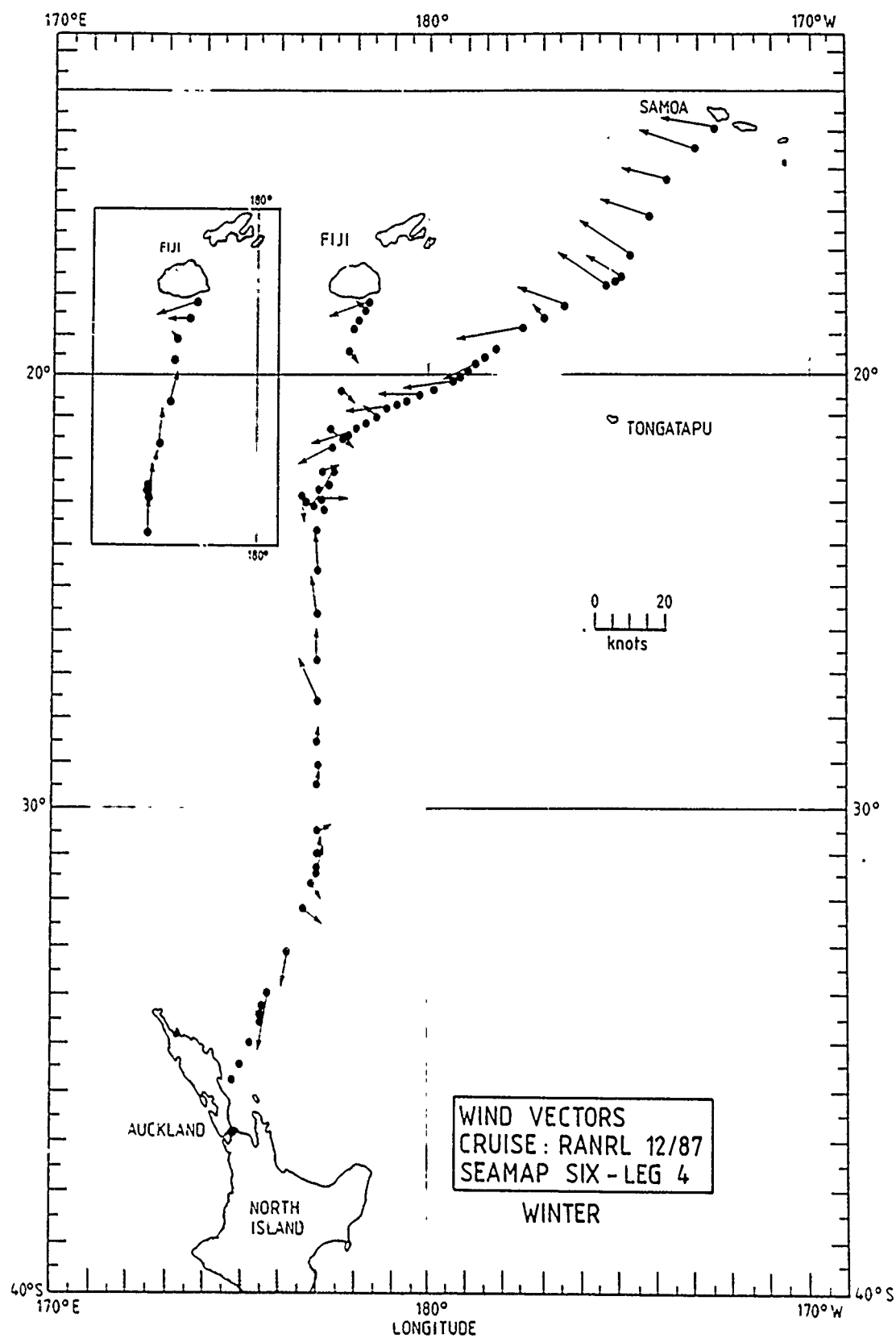


Figure 30. Wind vectors for SEAMAP route A in winter 1987 on survey SEAMAP 6 (RANRL 12/87). Leg four 31 August to 8 September 1987

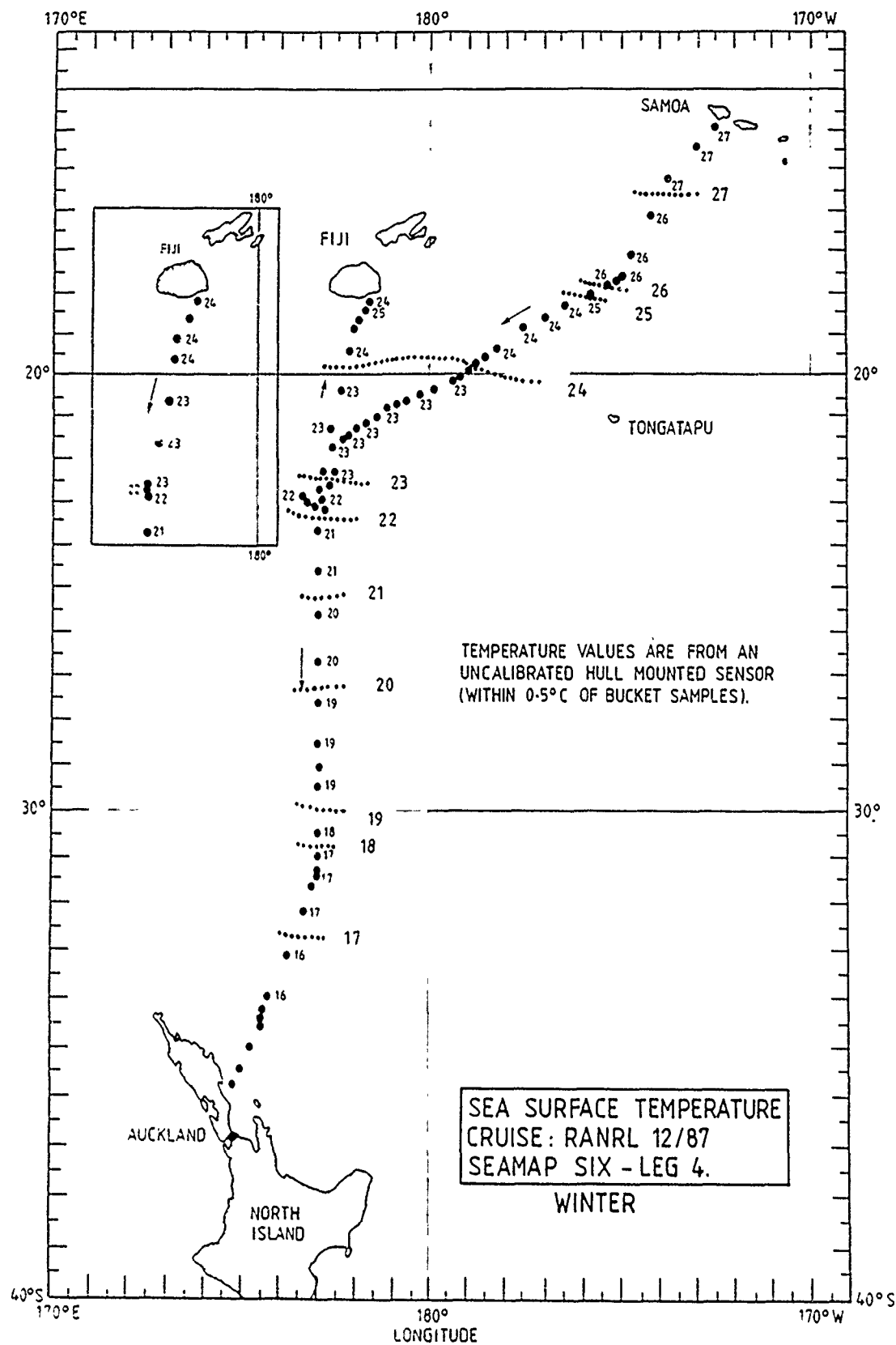


Figure 31. Sea surface temperature for SEAMAP route A in winter 1987 on survey SEAMAP 6 (RANRL 12/87). Leg four 31 August to 8 September 1987

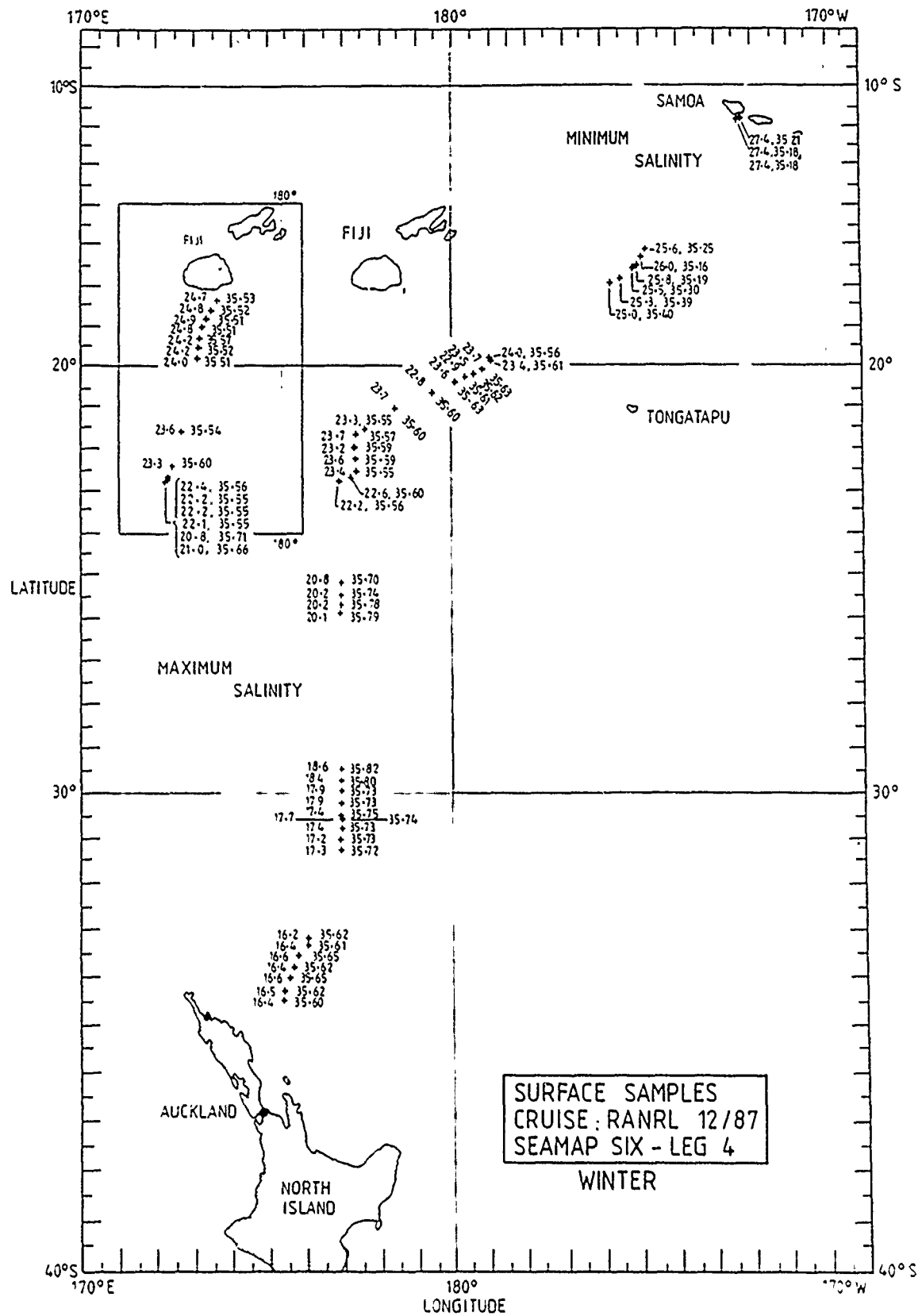


Figure 32. Sea surface salinity for SEAMAP route A in winter 1987 on survey SEAMAP 6 (RANRL 12/87). Leg four 31 August 1987 to 8 September 1987

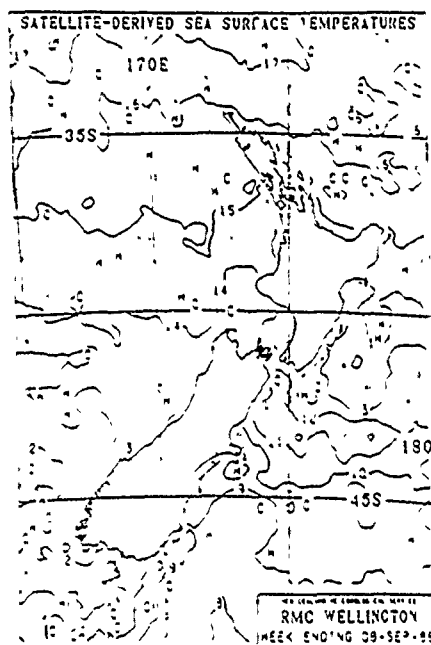
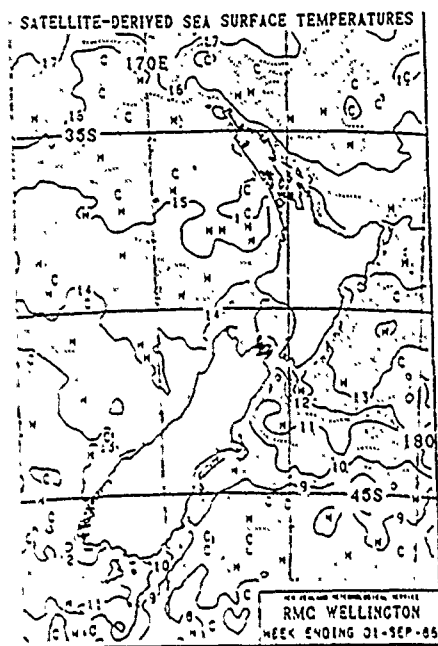


Figure 33. Sea surface temperature contours derived by Royal Meteorological Centre Wellington, New Zealand from satellite data for 1, 8 September 1987 coinciding with sections of SEAMAP 6 winter survey (RANRL 12/87) route A, leg four

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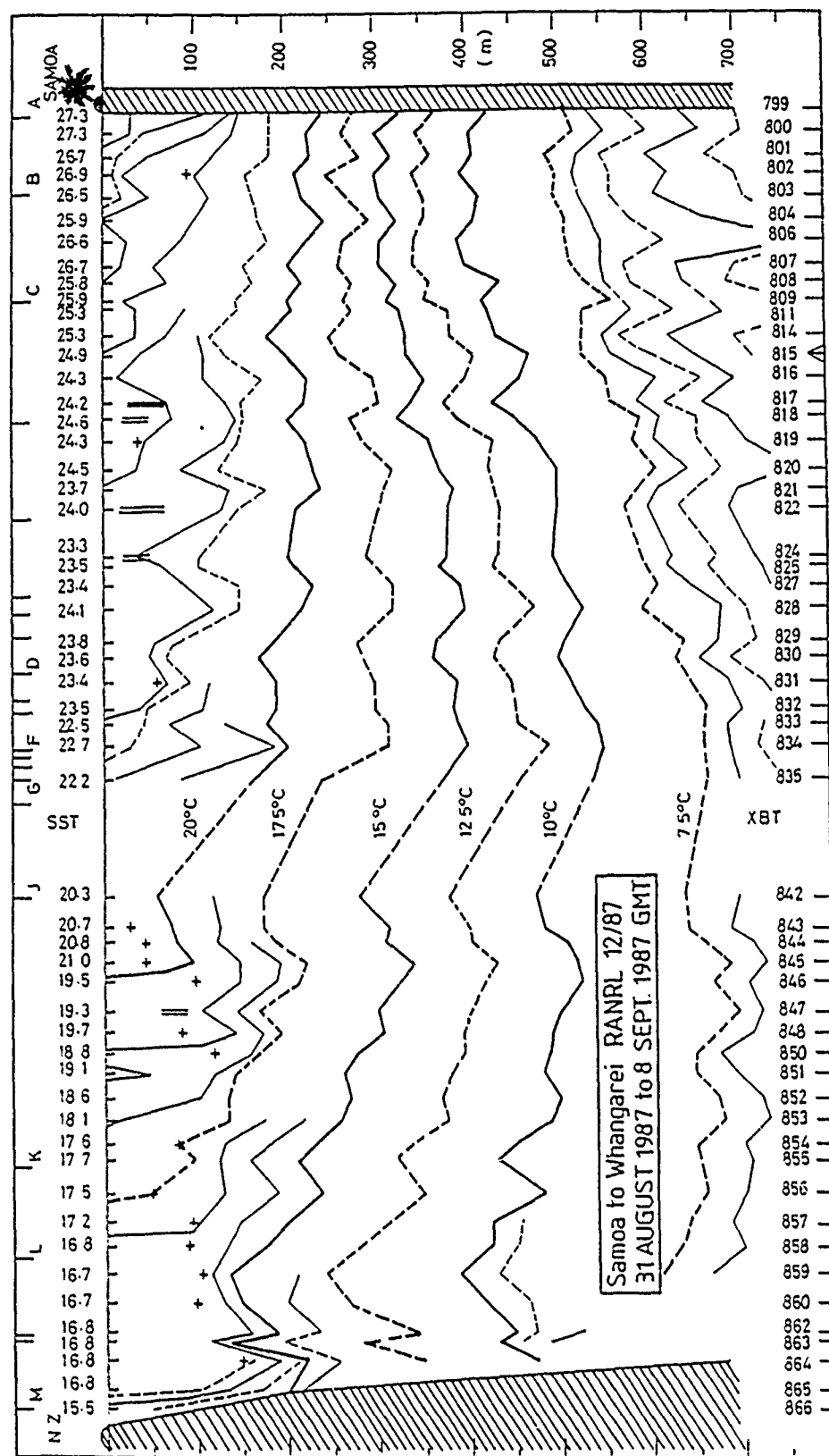


Figure 34. XBT temperature section from Samoa to New Zealand 31 August to 6 September 1987. Winter survey SEAMAP 6 (RANRL 12/87) route A, leg four. (See figure 28 for the cruise track)

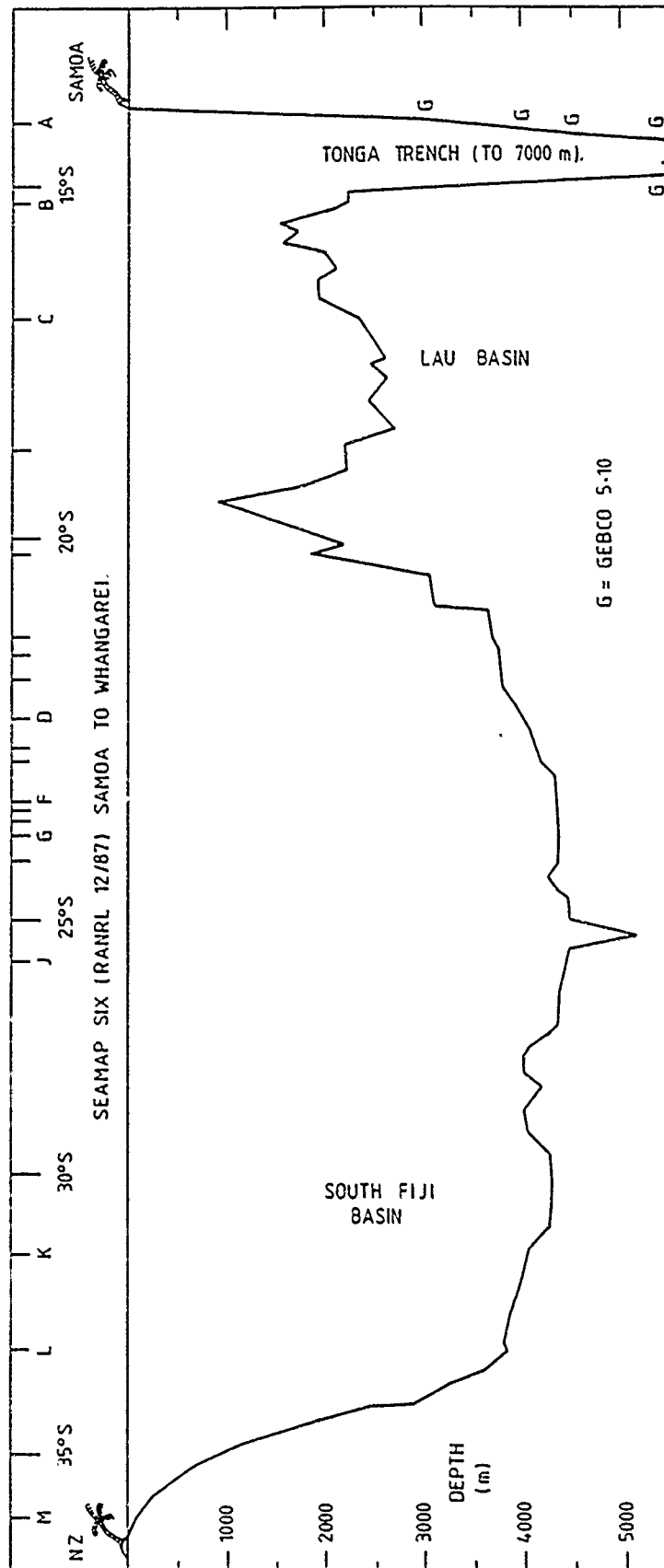


Figure 35. Bathymetry from Samoa to New Zealand. Winter survey SEAMAP 6 (RANRL 12/87) route A, leg four. (See figure 28 for the cruise track)

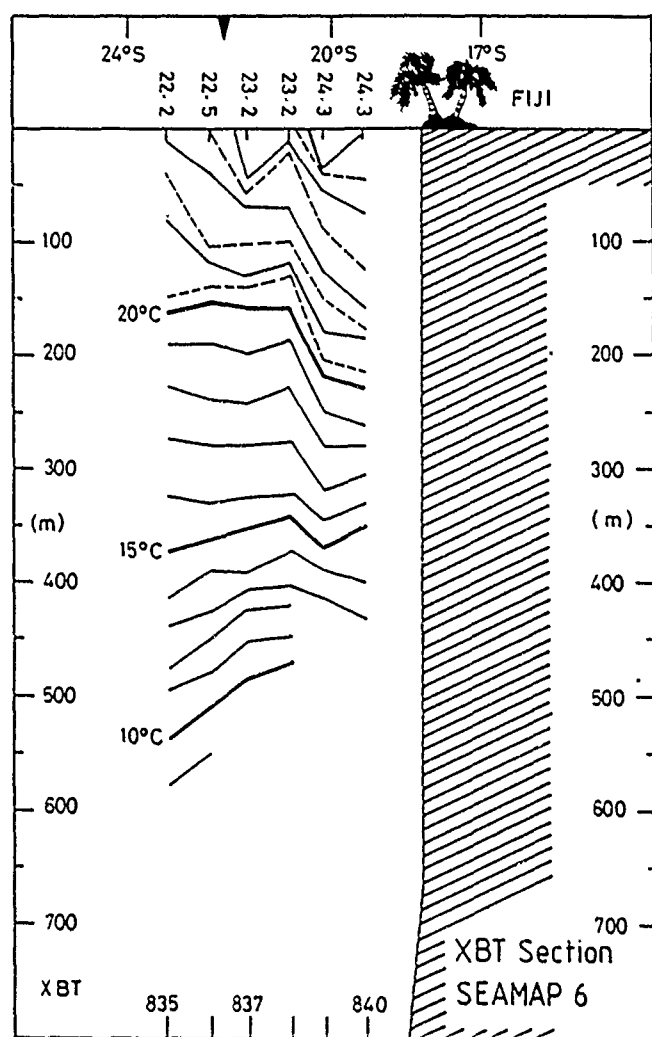


Figure 36. XBT temperature section from waypoint F to Fiji for 4 to 5 September 1987.  
Winter survey SEAMAP 6 (RANRL 12/87) route A, leg four



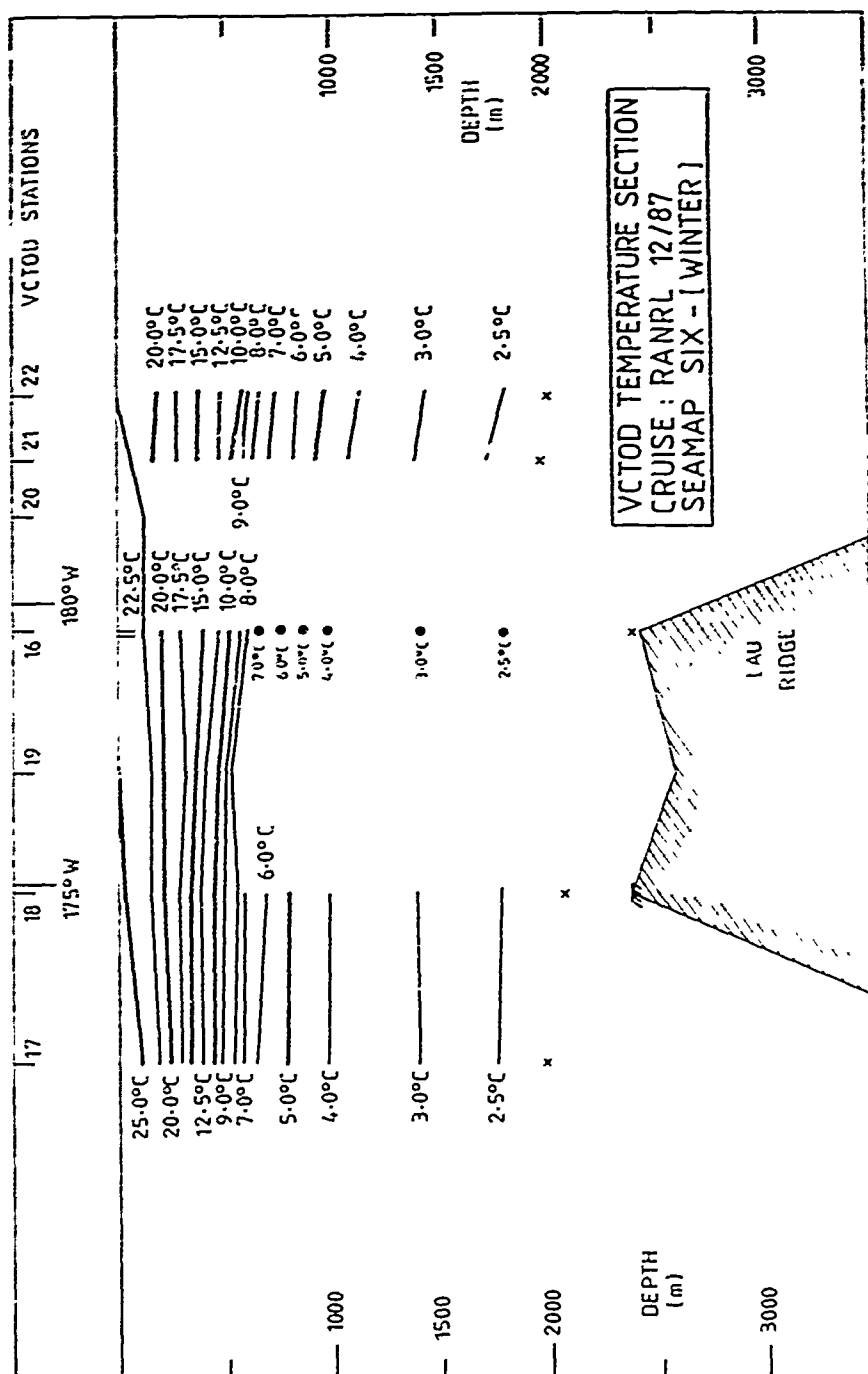


Figure 37. VCTOD temperature section to 2000 m from Samoa to station 22 for 24 August to 5 September 1987. ( x show deepest point reached at each station ). Winter survey SEAMAP 6 (RANRL 12/87) route A. leg four

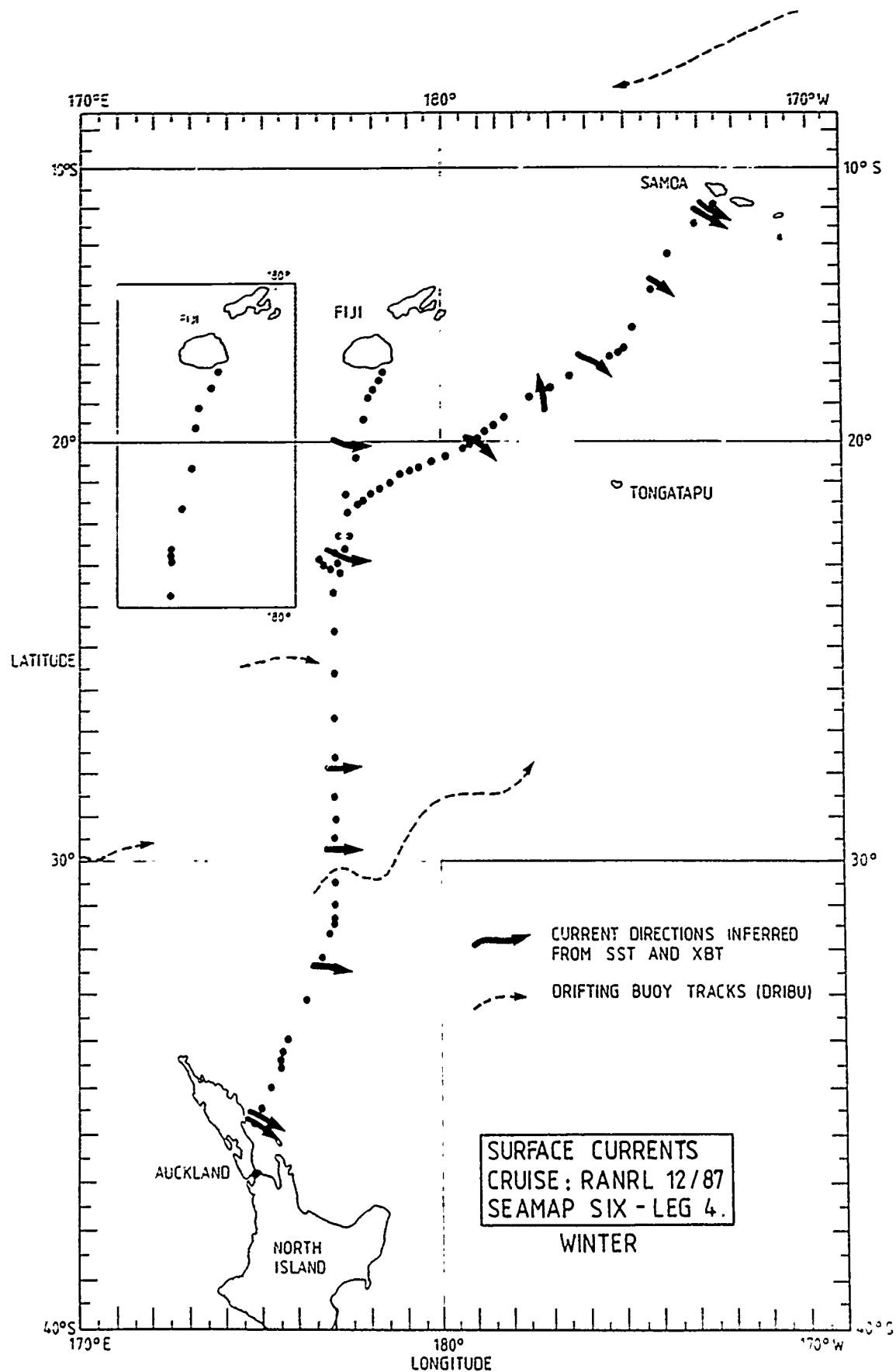


Figure 38. Surface current directions inferred from VCTOD, XBT, and sea surface temperature data. Winter survey SEAMAP 6 (RANRL 12/87) route A, leg four September 1987

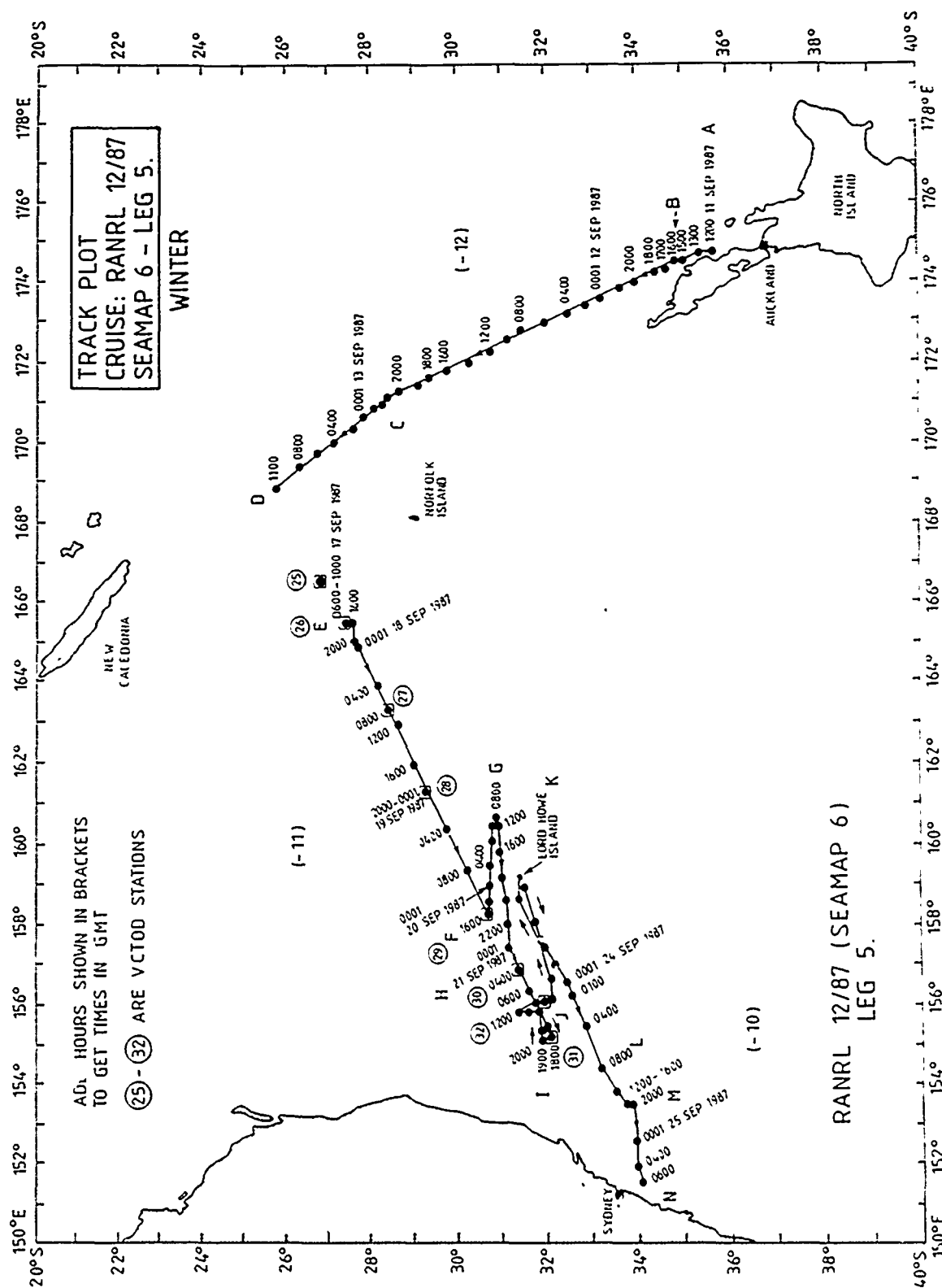


Figure 39. Track plot and oceanographic station positions for SEAMAP 6 (RANRL 12/87) winter survey on route A in the south west Pacific Ocean, 11 to 25 September 1987. Leg five

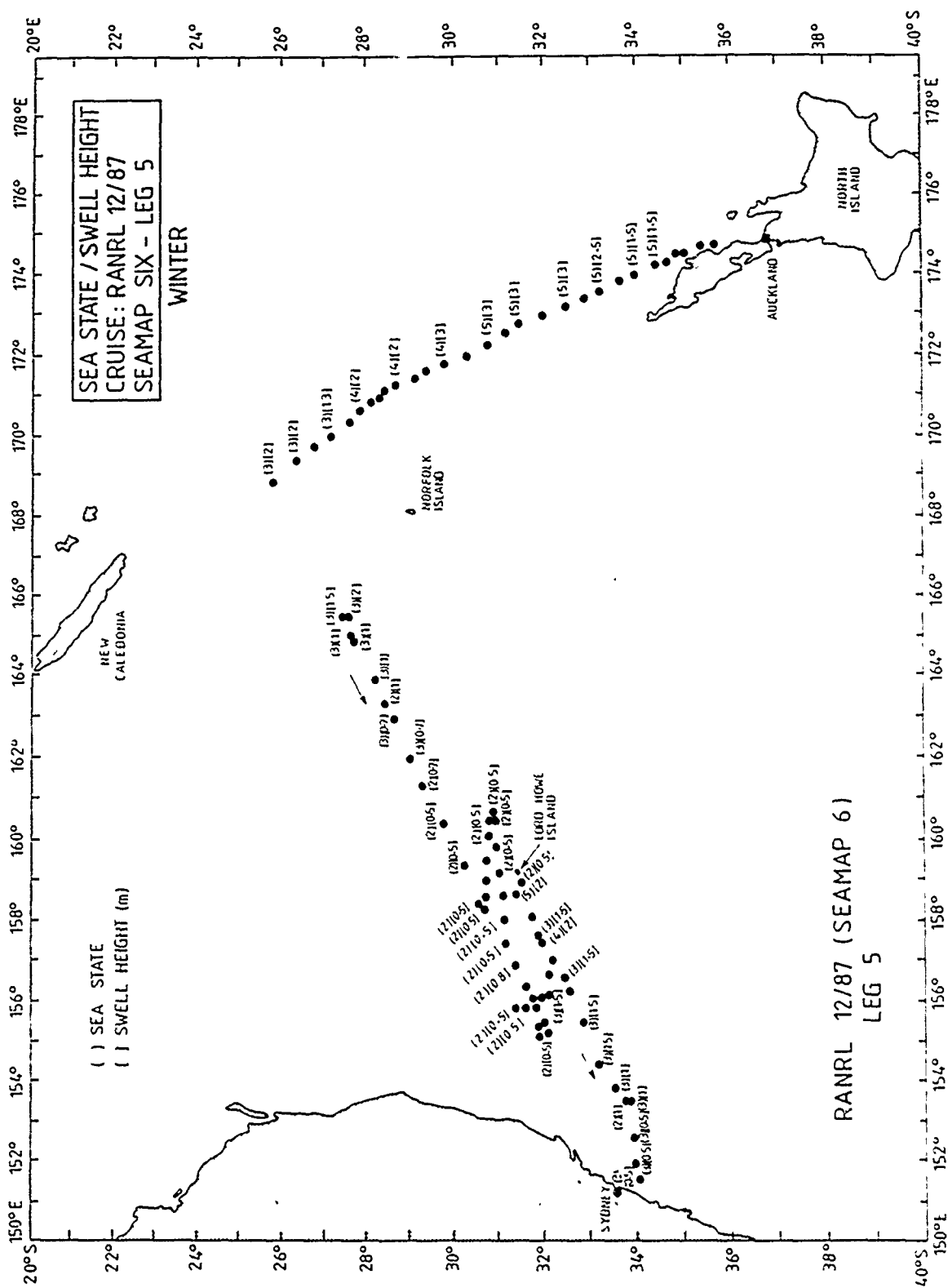


Figure 40. Sea state and swell height for SEAMAP route A in winter 1987 on survey SEAMAP 6 (RANRL 12/87). Leg five 11 to 25 September 1987

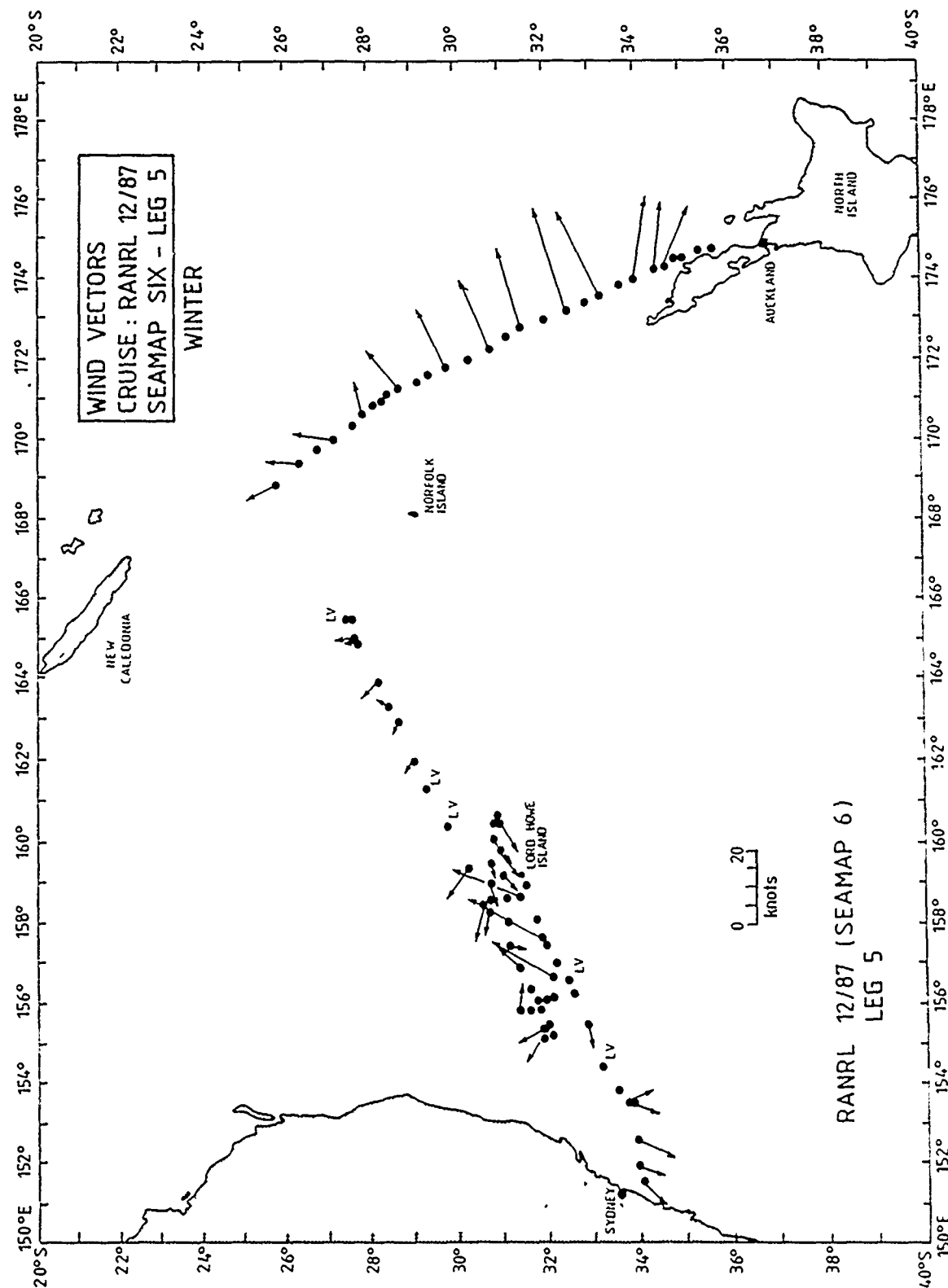


Figure 41. Wind vectors for SEAMAP route A in winter 1987 on survey SEAMAP 6 (RANRL 12/87). Leg five 11 to 25 September 1987

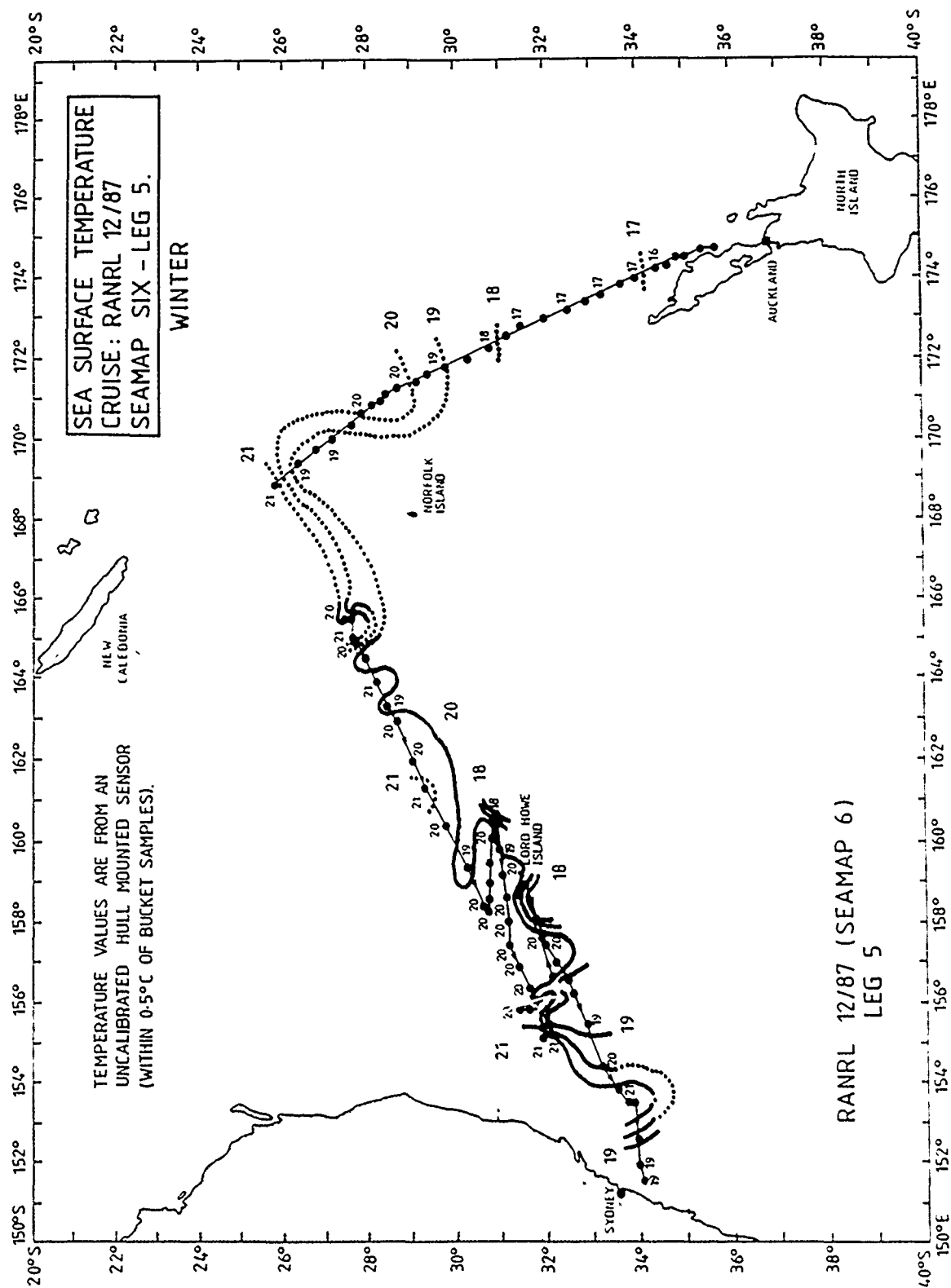


Figure 42. Sea surface temperature for SEAMAP route A in winter 1987 on survey SEAMAP 6 (RANRL 12/87). Leg five 11 to 25 September 1987

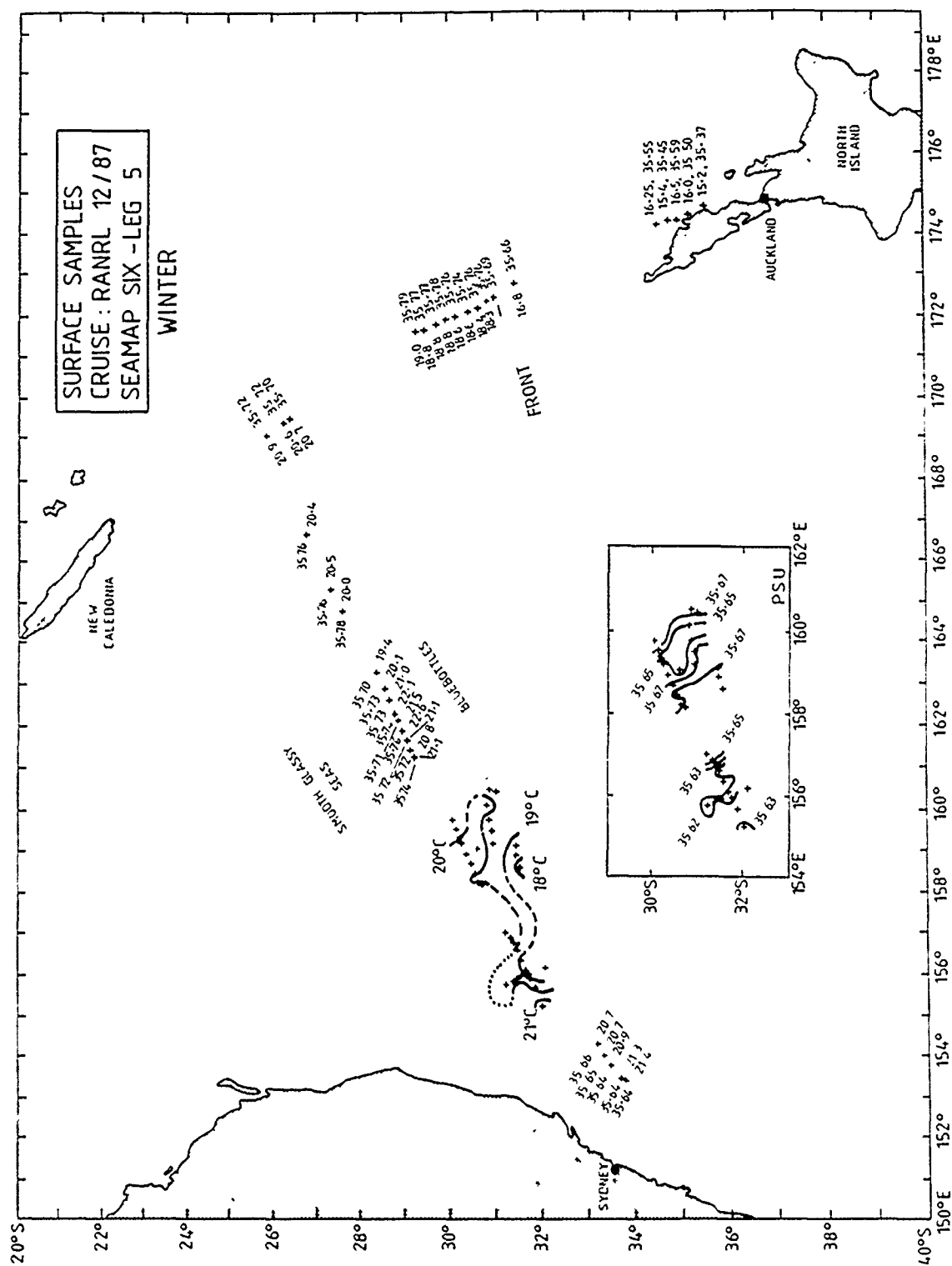


Figure 43. Sea surface salinity for SEAMAP route A in winter 1987 on survey SEAMAP 6 (RANRL 12/87). Leg five 11 to 25 September 1987

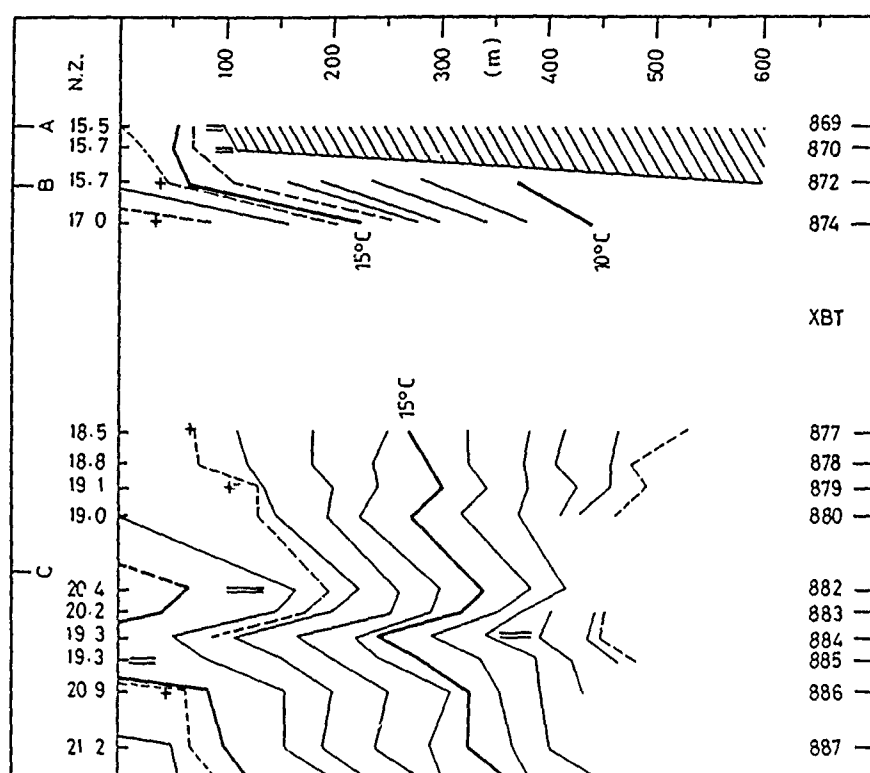


Figure 44. XBT temperature section from New Zealand to waypoint D for 11 to 13 September 1987. Winter survey SEAMAP 6 (RANRL 12/87) route A, leg five. (See figure 39 for the cruise track)



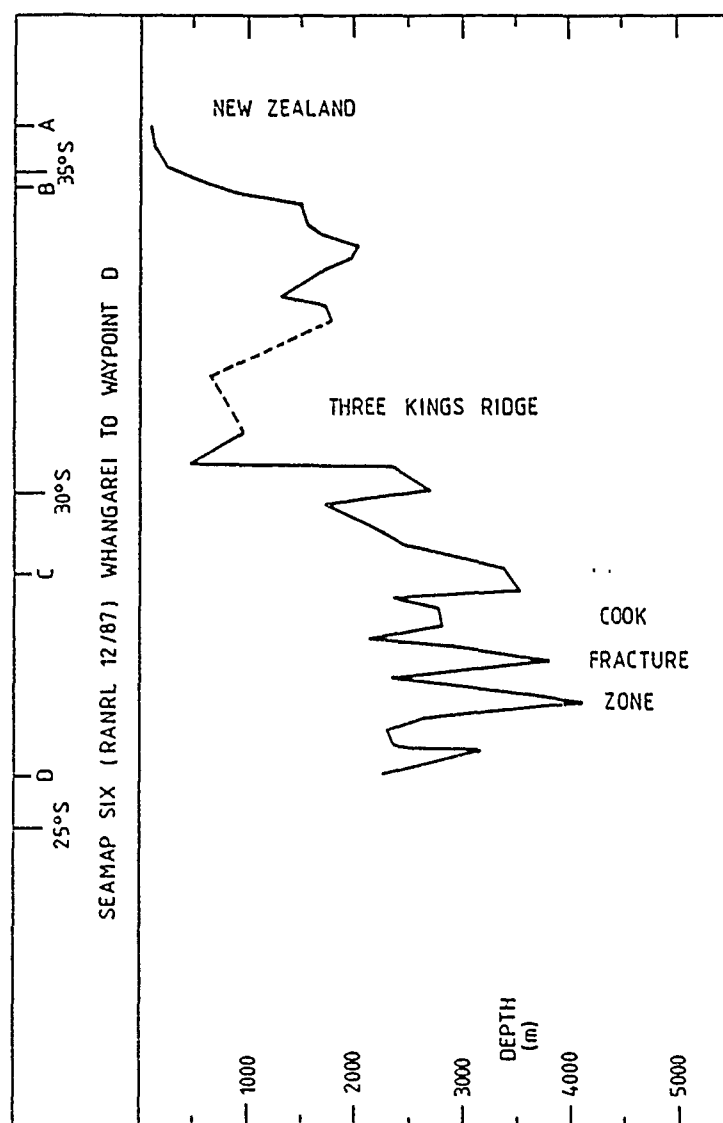


Figure 45. Bathymetry from New Zealand to waypoint D. Winter survey SEAMAP 6 (RANRL 12/87) route A, leg five, 11 to 13 September 1987

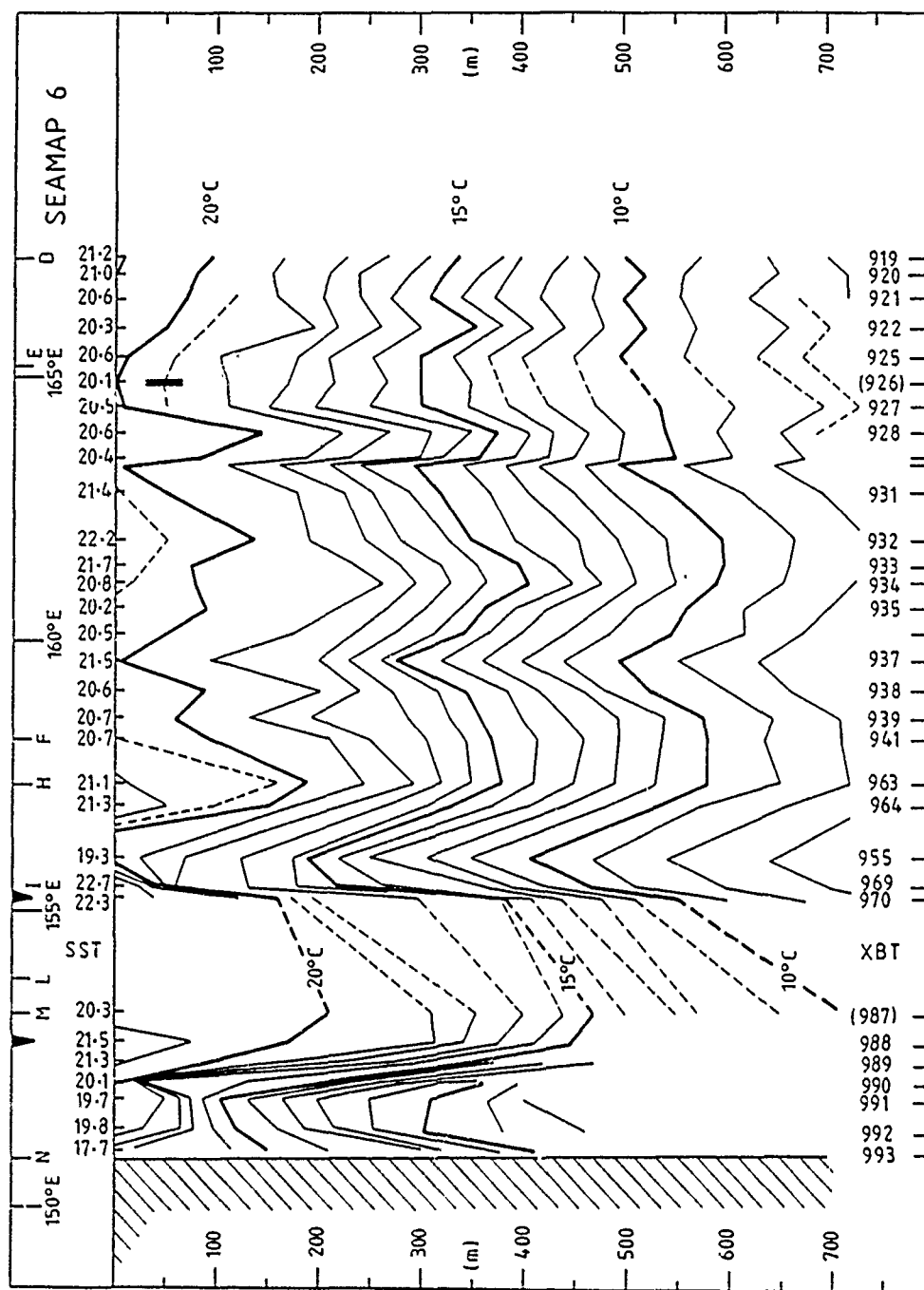


Figure 46. XBT temperature section from waypoint D to Sydney for 17 to 25 September 1987  
 'Winter survey SEAMAP 6 (RANRL 12/87) route A, leg five

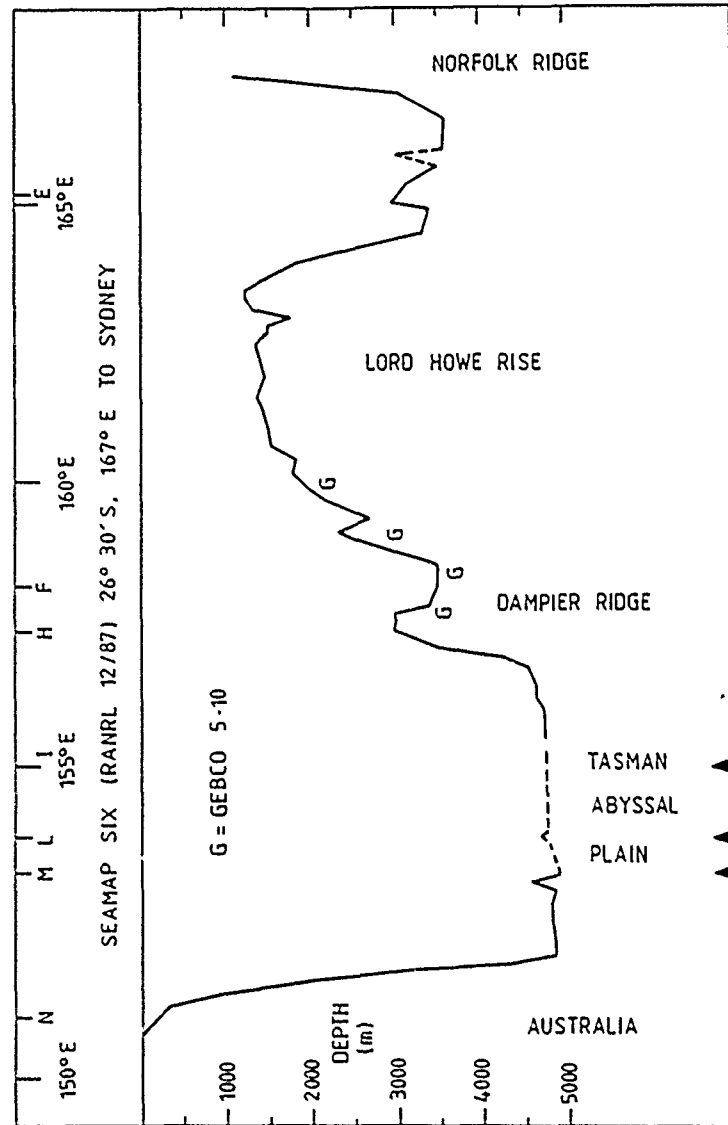


Figure 47. Bathymetry from waypoint D to Sydney for 17 to 25 September 1987. Winter survey SEAMAP 6 (RANRL 12/87) route A, leg five

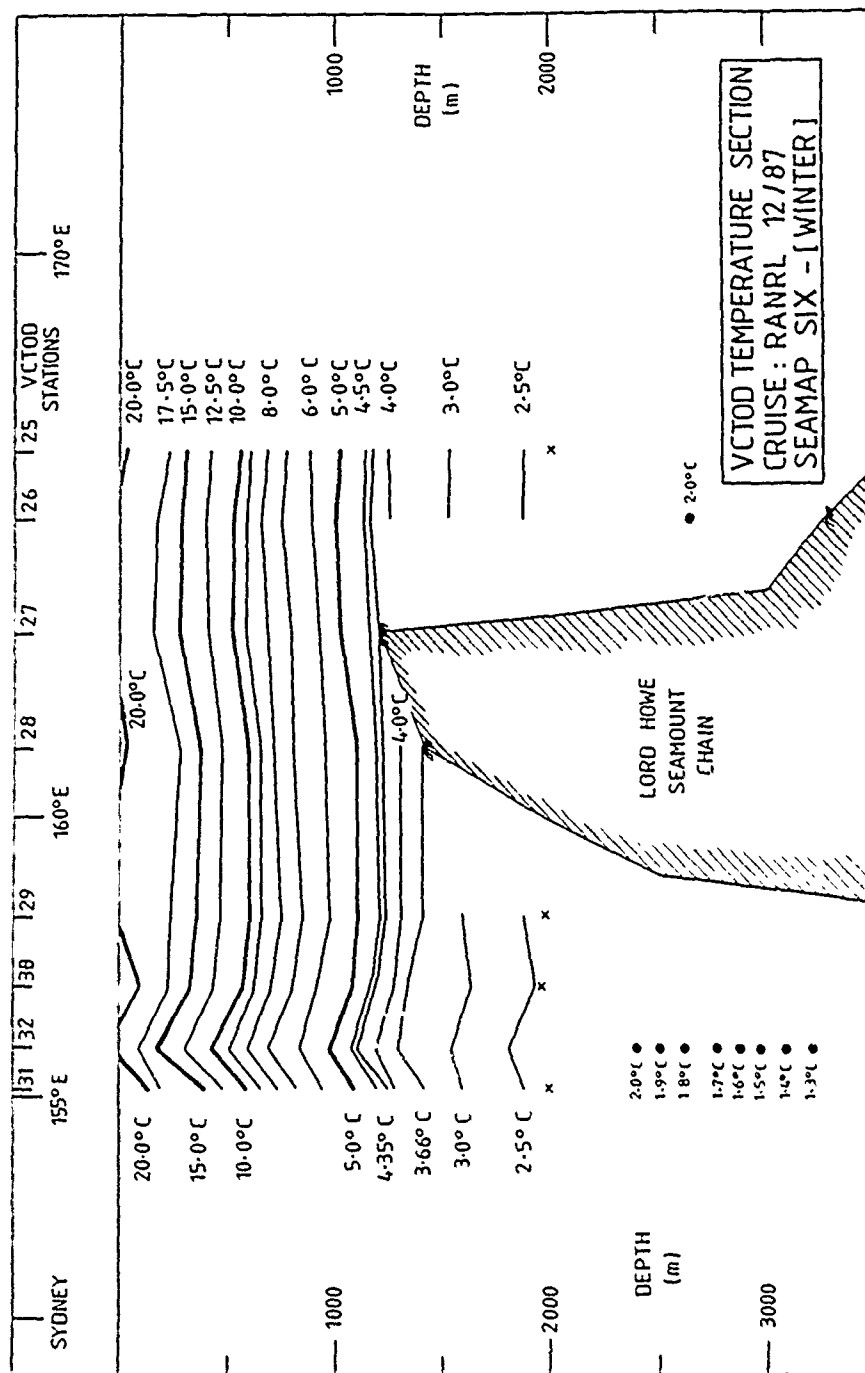


Figure 48. VCTOD temperature section to 2000 m from station 25 to station 31 for 16 to 21 September 1987. Winter survey SEAMAP 6 (RANRL 12/87) route A, leg five

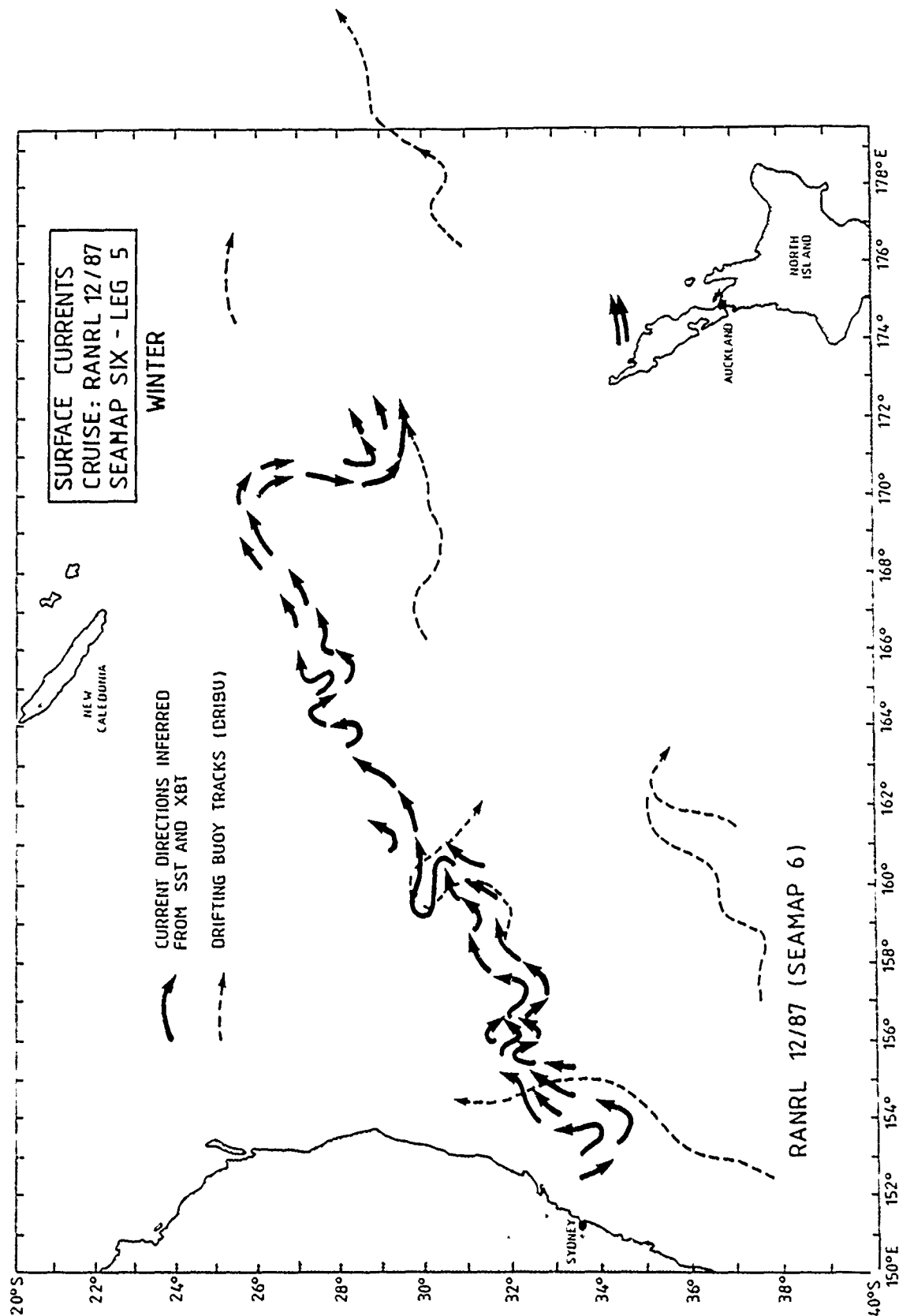


Figure 49 Surface current directions inferred from VCTOD, XBT, and sea surface temperature data. Winter survey SEAMAP 6 (RANRL 12/87) route A, leg five, September 1987

## SURFACE T-S SCATTER PLOT (SEAMAP 6)

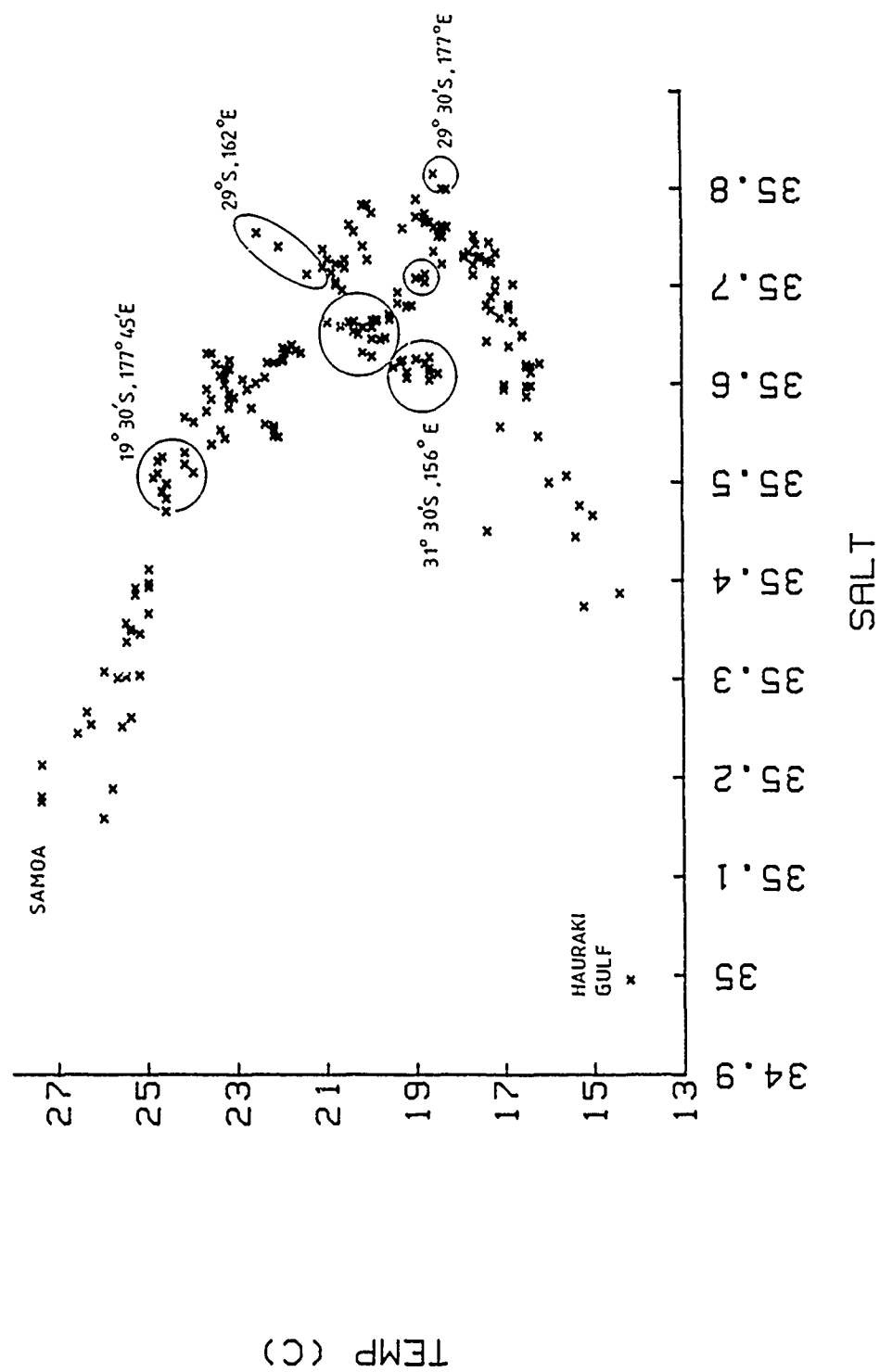


Figure 50. Temperature-Salinity plot for surface bucket samples taken on SEAMAP 6 (RANRL 12/87). Winter survey route A, 1987

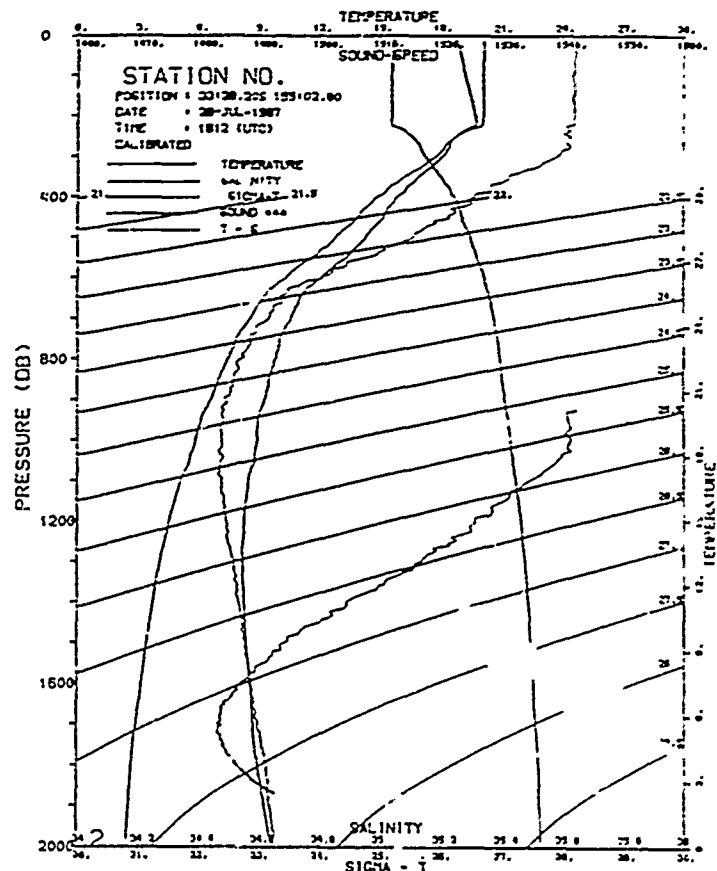
LISTINGS AND PROFILES FOR 32 VCTOD STATIONS OCCUPIED ON WINTER SURVEY SEAMAP 6 (RANRL 12/87) ARE SHOWN ON PAGES 74 TO 88.

Data are for downcasts. Large spurious spikes occur in salinity and temperature-salinity profiles, especially near the surface. Salinity is uncalibrated.

No data was logged at station 1.

SHIP : WMS COX - Flamingo  
STATION NUMBER : 2 (THROUGH THE CRUISE)  
STATION NUMBER : 2 (THROUGH THE CRUISE)  
DATE : 28-JUL-1987 (DAY NUMBER 210)  
SOUND TIME : 1512.00 - 2  
CRUISE : 0012.87  
POSITION : 33:29.226 155:02.07  
OBS DEPTH : 231 FEETES  
BOTTOM DEPTH : 1960 FEETES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SMA	G.A.	SOUND	POC TEMP
10.0	9.9	22.126	0.000	0.000	0.00	0.000	1522.73	22.12
20.0	19.9	22.140	0.000	0.000	0.00	0.000	1522.92	22.14
30.0	29.8	22.145	0.000	0.000	0.00	0.000	1523.07	22.14
40.0	39.7	22.141	0.000	0.000	0.00	0.000	1523.26	22.13
50.0	49.6	22.148	0.000	0.000	0.00	0.000	1523.43	22.14
60.0	59.6	22.151	0.000	0.000	0.00	0.000	1523.61	22.14
70.0	69.5	22.146	0.000	0.000	0.00	0.000	1523.85	22.13
80.0	79.4	22.141	0.000	0.000	0.00	0.000	1524.01	22.13
90.0	89.3	22.145	0.000	0.000	0.00	0.000	1524.06	22.13
100.0	99.3	22.151	0.000	0.000	0.00	0.000	1524.27	22.13
120.0	119.1	22.149	0.000	0.000	0.00	0.000	1524.63	22.13
140.0	139.0	22.147	0.000	0.000	0.00	0.000	1524.97	22.13
160.0	158.8	22.145	0.000	0.000	0.00	0.000	1525.30	22.13
180.0	178.6	22.150	0.000	0.000	0.00	0.000	1525.59	22.12
200.0	198.5	22.152	0.000	0.000	0.00	0.000	1525.93	22.12
220.0	218.3	22.129	0.000	0.000	0.00	0.000	1526.19	22.09
240.0	238.2	19.157	0.000	0.000	0.00	0.000	1527.70	19.12
260.0	258.0	18.536	0.000	0.000	0.00	0.000	1527.22	18.49
280.0	277.8	18.328	0.000	0.000	0.00	0.000	1527.69	18.18
300.0	297.7	17.735	0.000	0.000	0.00	0.000	1529.52	17.68
320.0	317.5	17.186	0.000	0.000	0.00	0.000	1519.20	17.13
340.0	337.3	16.531	0.000	0.000	0.00	0.000	1517.42	16.48
360.0	357.1	15.977	0.000	0.000	0.00	0.000	1516.01	15.92
380.0	377.0	15.390	0.000	0.000	0.00	0.000	1514.53	15.33
400.0	396.8	14.876	0.000	0.000	0.00	0.000	1513.13	14.82
420.0	416.6	14.473	0.000	0.000	0.00	0.000	1512.18	14.41
440.0	436.4	14.073	0.000	0.000	0.00	0.000	1511.16	14.01
460.0	456.2	13.736	0.000	0.000	0.00	0.000	1510.31	13.67
480.0	476.0	13.299	0.000	0.000	0.00	0.000	1508.87	13.14
500.0	495.9	12.789	0.000	0.000	0.00	0.000	1507.80	12.72
550.0	545	1.574	0.000	0.000	0.00	0.000	1504.67	11.60
600.0	594.9	0.744	0.000	0.000	0.00	0.000	1500.62	10.27
700.0	691.9	0.577	0.000	0.000	0.00	0.000	1495.59	8.50
800.0	792.8	7.441	0.000	0.000	0.00	0.000	1492.87	7.36
900.0	891.7	5.611	0.000	0.000	0.00	0.000	1491.19	6.52
1000.0	990.5	5.817	0.000	0.000	0.00	0.000	1489.89	5.77
1100.0	1089.3	5.101	0.000	0.000	0.00	0.000	1488.49	5.21
1200.0	1188.1	4.500	0.000	0.000	0.00	0.000	1487.69	4.40
1320.0	1266.8	4.078	0.000	0.000	0.00	0.000	1487.53	3.98
1400.0	1385.4	3.433	0.000	0.000	0.00	0.000	1487.71	3.50
1500.0	1484.0	3.421	0.000	0.000	0.00	0.000	1486.20	3.31
1600.0	1582.5	3.149	0.000	0.000	0.00	0.000	1486.70	3.03
1700.0	1681.1	2.918	0.000	0.000	0.00	0.000	1489.7	2.79
1800.0	1779.6	2.560	0.000	0.000	0.00	0.000	1490.20	2.53
1900.0	1878.0	2.548	0.000	0.000	0.00	0.000	1491.25	2.41
2000.0	1976.4	2.406	0.000	0.000	0.00	0.000	1492.32	2.26
2100.0	2074.7	2.327	0.000	0.000	0.00	0.000	1493.70	2.18
2200.0	2173.0	2.244	0.000	0.000	0.00	0.000	1495.06	2.09
2300.0	2271.2	2.182	0.000	0.000	0.00	0.000	1496.45	2.02
2400.0	2369.4	2.058	0.000	0.000	0.00	0.000	1497.77	1.91
2410.0	2379.2	2.068	0.000	0.000	0.00	0.000	1497.98	1.91



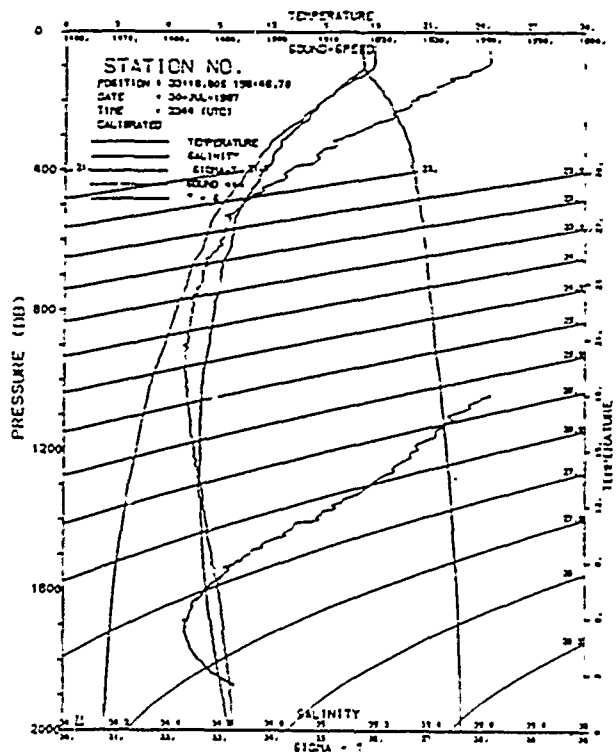
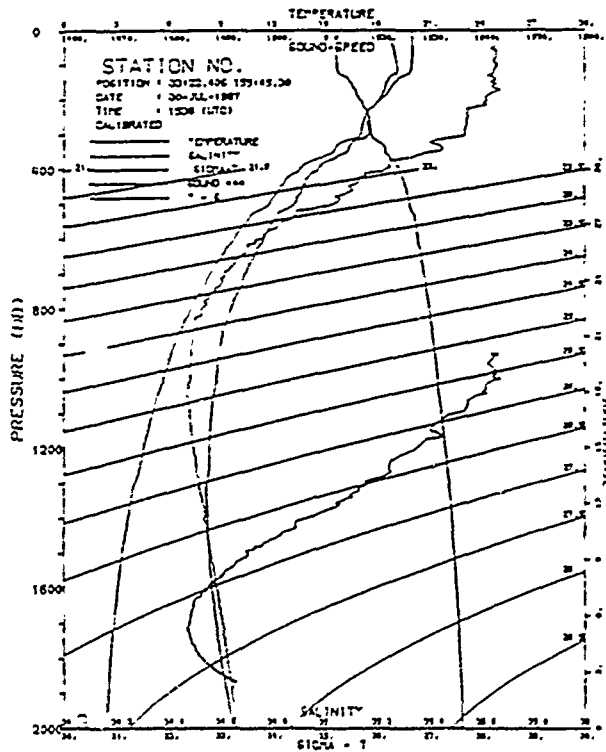
Text continued on page 89

STATION : WWS COK - WISKEY  
 STATION NUMBER : 1 (STATION DE COK)  
 STATION NUMBER : 9 (STATION DE WWS)  
 DATE : 30-JUL-1987 (DAY NUMBER 211)  
 TIME : 1536 UTC - 2  
 DATE TIME : 0712.97  
 POSITION : 33:22.625 155:45.30E  
 DATE DEPTH : 1536 FEET  
 STATION DEPTH : 1536 FEET

PRESS	DEPTH	TEMP	SAL	STOR-T	SA	G.A.	Sound	POC-TEMP
0.0	0.0	22.050	0.000	0.000	0.00	0.000	1522.58	22.05 5 0.000 0.000
10.0	9.9	22.052	0.000	0.000	0.00	0.000	1522.53	22.05 55 0.012 0.006
20.0	19.9	22.054	0.000	0.000	0.00	0.000	1522.82	22.05 43 0.005 0.005
30.0	29.8	22.054	0.000	0.000	0.00	0.000	1522.99	22.05 59 0.029 0.004
40.0	39.7	22.055	0.000	0.000	0.00	0.000	1523.13	22.06 50 0.032 0.004
50.0	49.6	22.052	0.000	0.000	0.00	0.000	1523.32	22.06 48 0.029 0.004
60.0	59.6	22.061	0.000	0.000	0.00	0.000	1523.47	22.05 47 0.020 0.005
70.0	69.5	22.063	0.000	0.000	0.00	0.000	1523.65	22.05 40 0.004 0.005
80.0	79.4	22.053	0.000	0.000	0.00	0.000	1523.80	22.04 51 0.021 0.009
90.0	89.3	22.045	0.000	0.000	0.00	0.000	1523.91	22.03 35 0.019 0.006
100.0	99.2	22.006	0.000	0.000	0.00	0.000	1524.01	22.00 47 0.025 0.002
110.0	109.1	22.003	0.000	0.000	0.00	0.000	1524.07	22.01 45 0.034 0.024
120.0	119.0	22.004	0.000	0.000	0.00	0.000	1522.47	22.02 51 0.052 0.050
130.0	128.9	22.003	0.000	0.000	0.00	0.000	1521.77	22.06 49 0.070 0.059
140.0	138.8	22.003	0.000	0.000	0.00	0.000	1521.43	22.03 36 0.037 0.041
150.0	148.7	22.003	0.000	0.000	0.00	0.000	1520.59	22.01 54 0.064 0.052
160.0	158.6	22.003	0.000	0.000	0.00	0.000	1519.72	22.02 56 0.090 0.122
170.0	168.5	22.003	0.000	0.000	0.00	0.000	1518.49	22.03 58 0.029 0.025
180.0	178.4	22.003	0.000	0.000	0.00	0.000	1518.63	22.01 54 0.023 0.022
190.0	188.3	22.003	0.000	0.000	0.00	0.000	1518.61	22.00 56 0.015 0.029
200.0	198.2	22.003	0.000	0.000	0.00	0.000	1518.65	22.02 32 0.047 0.036
210.0	208.1	22.003	0.000	0.000	0.00	0.000	1515.12	22.01 34 0.167 0.196
220.0	218.0	22.003	0.000	0.000	0.00	0.000	1514.96	22.01 41 0.017 0.017
230.0	227.9	22.003	0.000	0.000	0.00	0.000	1513.36	22.01 33 0.120 0.102
240.0	237.8	22.003	0.000	0.000	0.00	0.000	1510.51	22.01 33 0.141 0.137
250.0	247.7	22.003	0.000	0.000	0.00	0.000	1509.09	22.01 35 0.092 0.098
260.0	257.6	22.003	0.000	0.000	0.00	0.000	1507.52	22.01 35 0.060 0.062
270.0	267.5	22.003	0.000	0.000	0.00	0.000	1506.59	22.01 39 0.042 0.047
280.0	277.4	22.003	0.000	0.000	0.00	0.000	1505.91	22.01 39 0.011 0.006
290.0	287.3	22.003	0.000	0.000	0.00	0.000	1505.06	22.01 32 0.080 0.075
300.0	297.2	22.003	0.000	0.000	0.00	0.000	1504.46	22.01 39 0.039 0.046
310.0	307.1	22.003	0.000	0.000	0.00	0.000	1500.39	22.01 39 0.062 0.073
320.0	317.0	22.003	0.000	0.000	0.00	0.000	1498.41	22.01 36 0.028 0.025
330.0	326.9	22.003	0.000	0.000	0.00	0.000	1494.76	22.01 29 0.053 0.044
340.0	336.8	22.003	0.000	0.000	0.00	0.000	1491.97	22.01 40 0.048 0.044
350.0	346.7	22.003	0.000	0.000	0.00	0.000	1490.14	22.01 37 0.022 0.020
360.0	356.6	22.003	0.000	0.000	0.00	0.000	1489.19	22.01 37 0.017 0.015
370.0	366.5	22.003	0.000	0.000	0.00	0.000	1488.33	22.01 37 0.018 0.013
380.0	376.4	22.003	0.000	0.000	0.00	0.000	1487.78	22.01 41 0.011 0.008
390.0	386.3	22.003	0.000	0.000	0.00	0.000	1487.38	22.01 41 0.015 0.012
400.0	396.2	22.003	0.000	0.000	0.00	0.000	1487.49	22.01 35 0.009 0.007
410.0	406.1	22.003	0.000	0.000	0.00	0.000	1487.83	22.01 35 0.007 0.010
420.0	416.0	22.003	0.000	0.000	0.00	0.000	1488.36	22.01 34 0.009 0.007
430.0	425.9	22.003	0.000	0.000	0.00	0.000	1489.15	22.01 33 0.007 0.004
440.0	435.8	22.003	0.000	0.000	0.00	0.000	1490.12	22.01 39 0.007 0.004
450.0	445.7	22.003	0.000	0.000	0.00	0.000	1491.25	22.01 34 0.004 0.002
460.0	455.6	22.003	0.000	0.000	0.00	0.000	1492.47	22.01 36 0.005 0.003
470.0	465.5	22.003	0.000	0.000	0.00	0.000	1492.98	22.01 35 0.004 0.005

STATION : WWS COK - WISKEY  
 STATION NUMBER : 4 (STATION DE COK)  
 STATION NUMBER : 9 (STATION DE WWS)  
 DATE : 30-JUL-1987 (DAY NUMBER 211)  
 TIME : 2344 UTC - 2  
 DATE TIME : 0712.97  
 POSITION : 33:18.925 156:46.70E  
 DATE DEPTH : 1536 FEET  
 STATION DEPTH : 1536 FEET

PRESS	DEPTH	TEMP	SAL	STOR-T	SA	G.A.	Sound	POC-TEMP
10.0	9.9	17.754	0.000	0.000	0.00	0.000	1515.58	17.75 51 0.004 0.006
20.0	19.9	17.750	0.000	0.000	0.00	0.000	1515.82	17.75 52 0.005 0.006
30.0	29.8	17.756	0.000	0.000	0.00	0.000	1517.03	17.75 55 0.014 0.006
40.0	39.7	17.738	0.000	0.000	0.00	0.000	1517.08	17.73 45 0.011 0.012
50.0	49.6	17.722	0.000	0.000	0.00	0.000	1517.24	17.71 43 0.004 0.003
60.0	59.6	17.723	0.000	0.000	0.00	0.000	1517.40	17.71 39 0.004 0.005
70.0	69.5	17.725	0.000	0.000	0.00	0.000	1517.54	17.71 36 0.001 0.004
80.0	79.4	17.727	0.000	0.000	0.00	0.000	1517.76	17.71 48 0.002 0.005
90.0	89.3	17.725	0.000	0.000	0.00	0.000	1517.86	17.71 30 0.001 0.002
100.0	99.2	17.785	0.000	0.000	0.00	0.000	1517.94	17.76 25 0.023 0.024
110.0	109.1	17.794	0.000	0.000	0.00	0.000	1516.70	17.77 43 0.024 0.084
120.0	119.0	15.471	0.000	0.000	0.00	0.000	1514.71	15.55 59 0.082 0.069
130.0	128.9	15.466	0.000	0.000	0.00	0.000	1513.17	15.04 44 0.113 0.125
140.0	138.8	15.589	0.000	0.000	0.00	0.000	1512.00	15.56 42 0.043 0.052
150.0	148.7	14.915	0.000	0.000	0.00	0.000	1510.16	14.98 52 0.029 0.108
160.0	158.6	14.535	0.000	0.000	0.00	0.000	1509.15	14.50 53 0.073 0.087
170.0	168.5	13.959	0.000	0.000	0.00	0.000	1507.65	13.92 51 0.068 0.051
180.0	178.4	13.527	0.000	0.000	0.00	0.000	1506.49	13.49 47 0.124 0.137
190.0	188.3	12.924	0.000	0.000	0.00	0.000	1504.72	12.89 39 0.070 0.067
200.0	198.2	12.451	0.000	0.000	0.00	0.000	1503.38	12.41 31 0.020 0.028
210.0	208.1	11.938	0.000	0.000	0.00	0.000	1501.97	11.90 35 0.050 0.036
220.0	218.0	11.692	0.000	0.000	0.00	0.000	1501.48	11.65 32 0.029 0.039
230.0	227.9	11.323	0.000	0.000	0.00	0.000	1500.40	11.28 31 0.017 0.041
240.0	237.8	11.184	0.000	0.000	0.00	0.000	1500.21	11.14 31 0.017 0.041
250.0	247.7	10.582	0.000	0.000	0.00	0.000	1498.71	10.63 29 0.048 0.054
260.0	257.6	10.396	0.000	0.000	0.00	0.000	1497.95	10.35 30 0.024 0.015
270.0	267.5	10.141	0.000	0.000	0.00	0.000	1497.35	10.09 25 0.017 0.055
280.0	277.4	9.752	0.000	0.000	0.00	0.000	1496.27	9.70 29 0.022 0.025
290.0	287.3	9.425	0.000	0.000	0.00	0.000	1495.39	9.37 34 0.019 0.049
300.0	297.2	9.092	0.000	0.000	0.00	0.000	1494.40	9.04 32 0.038 0.031
310.0	307.1	8.490	0.000	0.000	0.00	0.000	1493.08	8.43 29 0.022 0.015
320.0	317.0	8.154	0.000	0.000	0.00	0.000	1492.50	8.10 31 0.032 0.038
330.0	326.9	7.242	0.000	0.000	0.00	0.000	1490.56	7.17 31 0.037 0.017
340.0	336.8	6.496	0.000	0.000	0.00	0.000	1489.20	6.42 31 0.028 0.022
350.0	346.7	5.860	0.000	0.000	0.00	0.000	1488.30	5.78 31 0.028 0.029
360.0	356.6	5.110	0.000	0.000	0.00	0.000	1486.96	5.03 34 0.015 0.029
370.0	366.5	4.636	0.000	0.000	0.00	0.000	1486.58	4.55 36 0.010 0.029
380.0	376.4	4.181	0.000	0.000	0.00	0.000	1486.43	4.09 29 0.013 0.012
390.0	386.3	3.720	0.000	0.000	0.00	0.000	1486.20	3.52 35 0.011 0.007
400.0	396.2	3.441	0.000	0.000	0.00	0.000	1486.70	3.34 27 0.009 0.008
410.0	406.1	3.142	0.000	0.000	0.00	0.000	1487.13	3.03 28 0.012 0.011
420.0	416.0	2.891	0.000	0.000	0.00	0.000	1487.70	2.78 38 0.005 0.003
430.0	425.9	2.714	0.000	0.000	0.00	0.000	1488.56	2.59 39 0.006 0.004
440.0	435.8	2.598	0.000	0.000	0.00	0.000	1489.83	2.45 33 0.004 0.004
450.0	445.7	2.465	0.000	0.000	0.00	0.000	1490.98	2.33 27 0.004 0.004
460.0	455.6	2.175	0.000	0.000	0.00	0.000	1492.26	2.23 36 0.005 0.004
470.0	465.5	2.113	0.000	0.000	0.00	0.000	1493.19	2.15 39 0.004 0.003



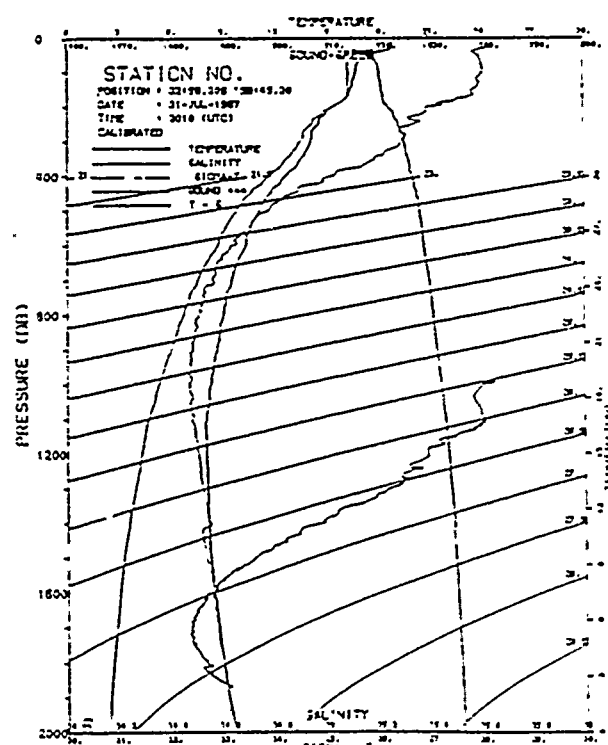
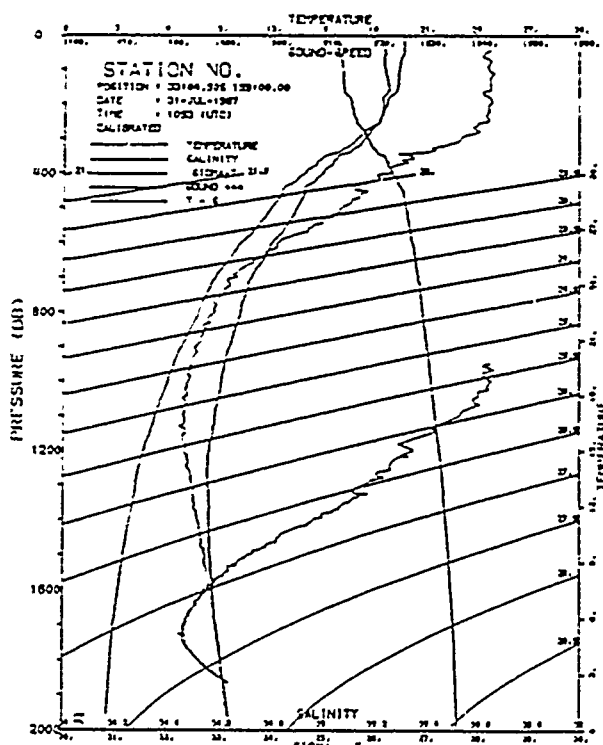


SHIP : HNS COX - Plessey  
 STATION NUMBER : 5 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 31-JUL-1987 (DAY NUMBER 212)  
 START TIME : 1053 UTC - Z  
 CRUISE : 0312/87  
 POSITION : 31:04.52S 159:00.00E  
 CUST DEPTH : 2023 METRES  
 BOTTOM DEPTH : 3724 METRES

PRESS	DEPTH	TDP	SAL	SIGMA-T	S-PA	G.A.	Sound	Pot.Temp
10.0	9.9	19.754	0.000	0.000	0.00	0.000	1521.79	19.75 25 0.004 0.004
20.0	19.9	19.747	0.000	0.000	0.00	0.000	1521.92	19.74 34 0.001 0.005
30.0	29.8	19.751	0.000	0.000	0.00	0.000	1522.03	19.75 44 0.011 0.002
40.0	39.7	19.746	0.000	0.000	0.00	0.000	1522.21	19.74 46 0.015 0.004
50.0	49.6	19.755	0.000	0.000	0.00	0.000	1522.39	19.75 48 0.037 0.003
60.0	59.5	19.546	0.000	0.000	0.00	0.000	1522.23	19.54 38 0.062 0.059
70.0	69.5	19.552	0.000	0.000	0.00	0.000	1522.12	19.54 41 0.042 0.006
80.0	79.4	19.518	0.000	0.000	0.00	0.000	1522.16	19.50 38 0.021 0.015
90.0	89.3	19.496	0.000	0.000	0.00	0.000	1522.24	19.47 43 0.009 0.010
100.0	99.3	19.454	0.000	0.000	0.00	0.000	1522.30	19.44 43 0.025 0.004
120.0	119.1	19.423	0.000	0.000	0.00	0.000	1522.65	19.40 52 0.002 0.002
140.0	139.0	19.403	0.000	0.000	0.00	0.000	1522.91	19.38 44 0.000 0.003
160.0	158.8	19.334	0.000	0.000	0.00	0.000	1523.00	19.31 50 0.025 0.043
180.0	178.7	19.851	0.000	0.000	0.00	0.000	1521.95	18.82 44 0.034 0.024
200.0	198.5	18.762	0.000	0.000	0.00	0.000	1522.06	18.73 50 0.037 0.024
220.0	218.3	18.600	0.000	0.000	0.00	0.000	1521.91	18.56 44 0.015 0.019
240.0	238.2	18.393	0.000	0.000	0.00	0.000	1521.62	18.35 47 0.028 0.021
260.0	258.0	17.990	0.000	0.000	0.00	0.000	1520.70	17.95 46 0.112 0.107
280.0	277.8	17.505	0.000	0.000	0.00	0.000	1519.59	17.46 46 0.056 0.064
300.0	297.7	17.011	0.000	0.000	0.00	0.000	1518.42	16.36 47 0.078 0.079
320.0	317.5	16.581	0.000	0.000	0.00	0.000	1517.31	15.53 32 0.092 0.124
340.0	337.3	15.789	0.000	0.000	0.00	0.000	1514.90	15.74 28 0.189 0.279
360.0	357.1	14.896	0.000	0.000	0.00	0.000	1512.59	14.84 33 0.112 0.142
380.0	377.0	14.498	0.000	0.000	0.00	0.000	1511.53	14.44 29 0.099 0.096
400.0	396.8	13.990	0.000	0.000	0.00	0.000	1510.26	13.92 32 0.068 0.106
420.0	416.6	13.488	0.000	0.000	0.00	0.000	1508.91	13.43 27 0.071 0.096
440.0	436.4	12.797	0.000	0.000	0.00	0.000	1506.89	12.74 31 0.059 0.061
460.0	456.2	12.634	0.000	0.000	0.00	0.000	1505.70	12.57 31 0.046 0.053
480.0	476.1	12.344	0.000	0.000	0.00	0.000	1505.99	12.28 32 0.047 0.044
500.0	495.9	12.027	0.000	0.000	0.00	0.000	1505.20	11.96 25 0.037 0.037
550.0	545.4	11.315	0.000	0.000	0.00	0.000	1503.38	11.24 25 0.057 0.074
600.0	594.9	10.280	0.000	0.000	0.00	0.000	1500.43	10.21 27 0.057 0.061
700.0	693.9	8.809	0.000	0.000	0.00	0.000	1496.52	8.73 35 0.041 0.049
800.0	792.8	7.826	0.000	0.000	0.00	0.000	1494.43	7.74 23 0.010 0.007
900.0	891.7	6.878	0.000	0.000	0.00	0.000	1492.27	6.79 26 0.014 0.014
1000.0	990.6	6.058	0.000	0.000	0.00	0.000	1490.73	5.97 21 0.007 0.008
1100.0	1089.4	5.326	0.000	0.000	0.00	0.000	1489.40	5.23 34 0.021 0.018
1200.0	1188.1	4.679	0.000	0.000	0.00	0.000	1488.40	4.58 30 0.029 0.026
1300.0	1286.8	4.203	0.000	0.000	0.00	0.000	1488.15	4.10 33 0.009 0.006
1400.0	1385.5	3.860	0.000	0.000	0.00	0.000	1488.33	3.75 29 0.013 0.013
1500.0	1484.1	3.503	0.000	0.000	0.00	0.000	1488.57	3.39 30 0.008 0.006
1600.0	1582.6	3.231	0.000	0.000	0.00	0.000	1489.07	3.11 28 0.008 0.005
1700.0	1681.2	2.941	0.000	0.000	0.00	0.000	1489.57	2.82 35 0.004 0.001
1800.0	1779.6	2.782	0.000	0.000	0.00	0.000	1490.55	2.65 30 0.004 0.003
1900.0	1878.1	2.645	0.000	0.000	0.00	0.000	1491.62	2.51 32 0.006 0.002
2000.0	1976.4	2.522	0.000	0.000	0.00	0.000	1492.84	2.38 29 0.002 0.003
2050.0	2025.6	2.484	0.000	0.000	0.00	0.000	1493.48	2.33 168 0.003 0.004

SHIP : HNS COX - Plessey  
 STATION NUMBER : 6 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 31-JUL-1987 (DAY NUMBER 212)  
 START TIME : 2010 UTC - Z  
 CRUISE : 0312/87  
 POSITION : 31:58.20S 159:45.20E  
 CUST DEPTH : 2240 METRES  
 BOTTOM DEPTH : 2325 METRES

PRESS	DEPTH	TDP	SAL	SIGMA-T	S-PA	G.A.	Sound	Pot.Temp
10.0	9.9	18.862	0.000	0.000	0.00	0.000	1519.36	18.86 53 0.017 0.005
20.0	19.9	18.869	0.000	0.000	0.00	0.000	1519.63	18.87 42 0.004 0.002
30.0	29.8	18.837	0.000	0.000	0.00	0.000	1519.57	18.83 42 0.028 0.015
40.0	39.7	18.108	0.000	0.000	0.00	0.000	1517.42	16.10 47 0.289 0.256
50.0	49.6	17.453	0.000	0.000	0.00	0.000	1515.82	17.44 51 0.129 0.124
60.0	59.5	17.145	0.000	0.000	0.00	0.000	1515.09	17.14 43 0.090 0.085
70.0	69.5	16.933	0.000	0.000	0.00	0.000	1514.60	16.92 42 0.054 0.051
80.0	79.4	16.801	0.000	0.000	0.00	0.000	1514.39	16.79 46 0.023 0.013
90.0	89.3	16.758	0.000	0.000	0.00	0.000	1514.46	16.74 48 0.007 0.006
100.0	99.3	16.735	0.000	0.000	0.00	0.000	1514.56	16.72 52 0.009 0.012
120.0	119.1	16.590	0.000	0.000	0.00	0.000	1514.46	16.57 49 0.033 0.029
140.0	139.0	16.513	0.000	0.000	0.00	0.000	1514.51	16.49 57 0.015 0.019
160.0	158.8	16.348	0.000	0.000	0.00	0.000	1514.25	16.32 45 0.020 0.014
180.0	178.7	16.015	0.000	0.000	0.00	0.000	1513.53	15.99 41 0.062 0.065
200.0	198.5	15.363	0.000	0.000	0.00	0.000	1511.66	15.33 39 0.152 0.179
220.0	218.3	14.775	0.000	0.000	0.00	0.000	1510.15	14.74 52 0.052 0.058
240.0	238.2	14.249	0.000	0.000	0.00	0.000	1508.82	14.21 42 0.025 0.046
260.0	258.0	13.923	0.000	0.000	0.00	0.000	1507.97	13.89 52 0.095 0.108
280.0	277.8	13.679	0.000	0.000	0.00	0.000	1507.50	13.54 47 0.019 0.029
300.0	297.7	13.471	0.000	0.000	0.00	0.000	1507.21	13.43 35 0.025 0.021
320.0	317.5	13.257	0.000	0.000	0.00	0.000	1506.72	13.21 38 0.052 0.057
340.0	337.3	12.920	0.000	0.000	0.00	0.000	1505.88	12.87 32 0.057 0.070
360.0	357.1	12.538	0.000	0.000	0.00	0.000	1504.84	12.49 31 0.042 0.047
380.0	377.0	12.170	0.000	0.000	0.00	0.000	1503.85	12.12 32 0.100 0.129
400.0	396.8	11.651	0.000	0.000	0.00	0.000	1502.31	11.50 32 0.058 0.059
420.0	416.6	11.254	0.000	0.000	0.00	0.000	1501.29	11.21 35 0.032 0.048
440.0	436.4	10.737	0.000	0.000	0.00	0.000	1499.63	10.58 29 0.039 0.039
460.0	456.2	10.363	0.000	0.000	0.00	0.000	1498.55	10.31 29 0.079 0.071
480.0	476.1	10.084	0.000	0.000	0.00	0.000	1497.87	10.03 25 0.010 0.010
500.0	495.9	9.788	0.000	0.000	0.00	0.000	1497.15	9.73 29 0.028 0.030
550.0	545.4	9.162	0.000	0.000	0.00	0.000	1495.59	9.10 33 0.034 0.028
600.0	594.9	8.715	0.000	0.000	0.00	0.000	1494.68	8.65 33 0.032 0.043
700.0	693.9	7.561	0.000	0.000	0.00	0.000	1491.86	7.49 32 0.028 0.025
800.0	792.8	6.751	0.000	0.000	0.00	0.000	1490.29	6.67 30 0.012 0.018
900.0	891.7	6.031	0.000	0.000	0.00	0.000	1489.09	5.55 36 0.014 0.010
1000.0	990.6	5.307	0.000	0.000	0.00	0.000	1487.78	5.22 30 0.029 0.024
1100.0	1089.4	4.696	0.000	0.000	0.00	0.000	1486.95	4.20 33 0.027 0.023
1200.0	1188.1	4.293	0.000	0.000	0.00	0.000	1486.99	4.29 35 0.011 0.009
1300.0	1286.8	3.945	0.000	0.000	0.00	0.000	1487.22	3.84 33 0.019 0.013
1400.0	1385.5	3.567	0.000	0.000	0.00	0.000	1487.31	3.46 31 0.005 0.002
1500.0	1484.1	3.262	0.000	0.000	0.00	0.000	1487.69	3.15 37 0.009 0.006
1600.0	1582.6	3.024	0.000	0.000	0.00	0.000	1488.36	2.91 40 0.007 0.004
1700.0	1681.2	2.833	0.000	0.000	0.00	0.000	1489.22	2.71 34 0.005 0.004
1800.0	1779.6	2.635	0.000	0.000	0.00	0.000	1490.05	2.50 33 0.005 0.004
1900.0	1878.1	2.479	0.000	0.000	0.00	0.000	1491.09	2.34 37 0.004 0.004
2000.0	1976.5	2.400	0.000	0.000	0.00	0.000	1492.42	2.26 32 0.003 0.004
2100.0	2074.8	2.317	0.000	0.000	0.00	0.000	1493.77	2.17 31 0.004 0.000
2200.0	2173.1	2.237	0.000	0.000	0.00	0.000	1495.12	2.08 39 0.003 0.000
2270.0	2241.9	2.215	0.000	0.000	0.00	0.000	1496.20	2.05 28 0.004 0.000

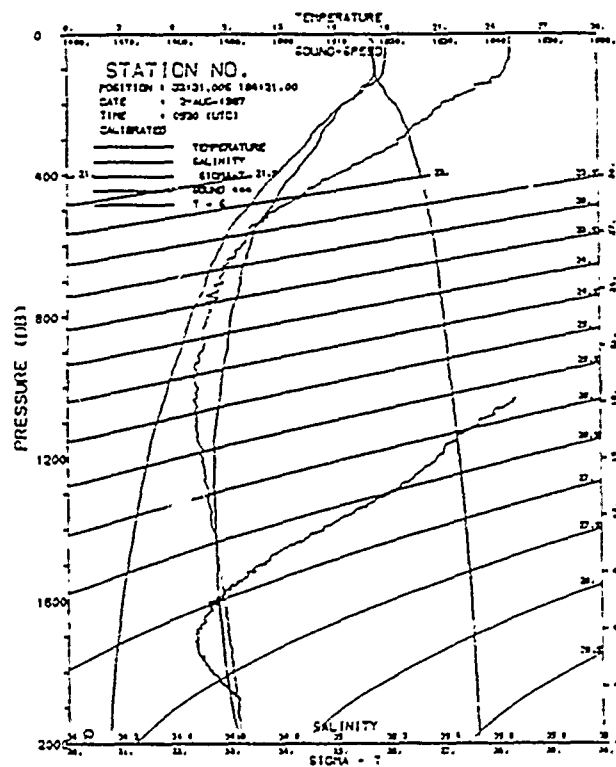
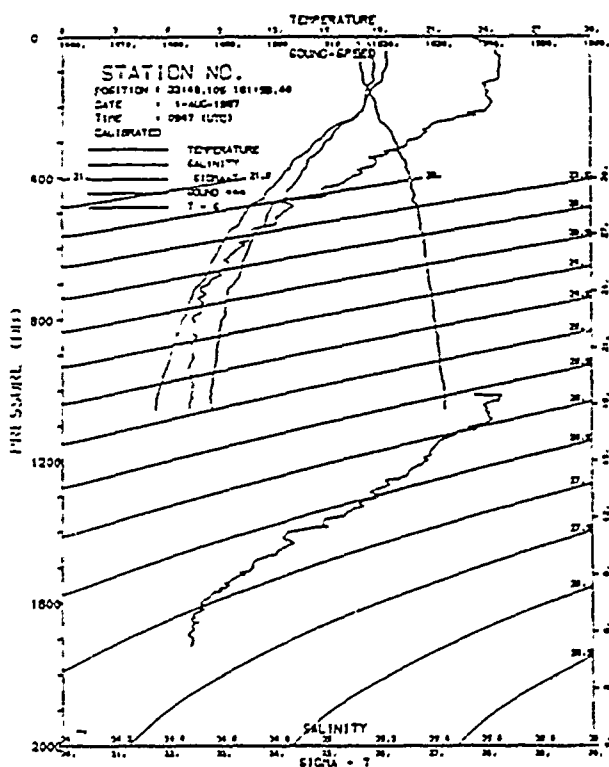


SHIP : HNS COOK - Fleetsy  
 STATION NUMBER : 7 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 01-AUG-1987 (DAY NUMBER 213)  
 START TIME : 0947 GMT - 2  
 CRUISE : 0012/87  
 POSITION : 32:49.10S 161:59.40E  
 CUST DEPTH : 1043 METRES  
 BOTTOM DEPTH : 1056 METRES

PRESS	DEPTH	TMP	SAL	SIGMA-T	S/A	G.A.	Sound	Pot.Temp
10.0	9.9	18.472	0.000	0.000	0.00	0.000	1518.10	18.47
20.0	19.9	18.448	0.000	0.000	0.00	0.000	1518.25	18.44
30.0	29.8	18.507	0.000	0.000	0.00	0.000	1518.58	18.50
40.0	39.7	18.475	0.000	0.000	0.00	0.000	1518.67	18.47
50.0	49.6	18.448	0.000	0.000	0.00	0.000	1518.83	18.44
60.0	59.6	18.459	0.000	0.000	0.00	0.000	1518.98	18.45
70.0	69.5	18.462	0.000	0.000	0.00	0.000	1519.13	18.45
80.0	79.4	18.452	0.000	0.000	0.00	0.000	1519.30	18.44
90.0	89.3	18.422	0.000	0.000	0.00	0.000	1519.31	18.41
100.0	99.3	18.310	0.000	0.000	0.00	0.000	1519.16	18.29
110.0	109.1	18.221	0.000	0.000	0.00	0.000	1519.24	18.20
120.0	119.0	17.801	0.000	0.000	0.00	0.000	1518.28	17.78
130.0	128.8	17.508	0.000	0.000	0.00	0.000	1517.74	17.48
140.0	138.7	17.259	0.000	0.000	0.00	0.000	1517.36	17.23
150.0	148.5	17.108	0.000	0.000	0.00	0.000	1517.23	17.07
160.0	158.3	16.737	0.000	0.000	0.00	0.000	1515.31	16.70
170.0	168.2	16.210	0.000	0.000	0.00	0.000	1514.86	16.17
180.0	178.0	15.337	0.000	0.000	0.00	0.000	1512.47	15.30
190.0	187.8	14.918	0.000	0.000	0.00	0.000	1511.51	14.88
200.0	197.7	14.415	0.000	0.000	0.00	0.000	1510.12	14.37
210.0	207.5	14.106	0.000	0.000	0.00	0.000	1509.45	14.06
220.0	217.3	13.565	0.000	0.000	0.00	0.000	1507.83	13.52
230.0	227.2	13.077	0.000	0.000	0.00	0.000	1506.58	13.03
240.0	237.0	12.756	0.000	0.000	0.00	0.000	1505.77	12.70
250.0	246.8	12.428	0.000	0.000	0.00	0.000	1505.02	12.37
260.0	256.6	12.077	0.000	0.000	0.00	0.000	1504.09	12.02
270.0	266.4	11.603	0.000	0.000	0.00	0.000	1502.77	11.55
280.0	276.2	11.458	0.000	0.000	0.00	0.000	1502.47	11.41
290.0	286.0	10.551	0.000	0.000	0.00	0.000	1499.89	10.59
300.0	295.8	10.390	0.000	0.000	0.00	0.000	1499.25	10.33
310.0	305.6	9.547	0.000	0.000	0.00	0.000	1496.90	9.48
320.0	315.4	8.326	0.000	0.000	0.00	0.000	1495.42	8.86
330.0	325.2	7.757	0.000	0.000	0.00	0.000	1492.53	7.68
340.0	335.0	6.797	0.000	0.000	0.00	0.000	1490.37	6.72
350.0	344.8	6.107	0.000	0.000	0.00	0.000	1489.35	6.02
360.0	354.6	5.402	0.000	0.000	0.00	0.000	1488.18	5.31
370.0	364.4	5.258	0.000	0.000	0.00	0.000	1488.44	5.17

SHIP : HNS COOK - Fleetsy  
 STATION NUMBER : 8 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 02-AUG-1987 (DAY NUMBER 214)  
 START TIME : 0520 GMT - 2  
 CRUISE : 0012/87  
 POSITION : 32:31.00S 164:21.00E  
 CUST DEPTH : 1989 METRES  
 BOTTOM DEPTH : 3124 METRES

PRESS	DEPTH	TMP	SAL	SIGMA-T	S/A	G.A.	Sound	Pot.Temp
0.0	0.0	18.108	0.000	0.000	0.00	0.000	1517.04	18.11
10.0	9.9	18.107	0.000	0.000	0.00	0.000	1517.13	18.11
20.0	19.9	18.025	0.000	0.000	0.00	0.000	1517.03	18.02
30.0	29.8	17.999	0.000	0.000	0.00	0.000	1517.14	17.99
40.0	39.7	17.995	0.000	0.000	0.00	0.000	1517.29	17.99
50.0	49.6	17.987	0.000	0.000	0.00	0.000	1517.43	17.98
60.0	59.6	17.976	0.000	0.000	0.00	0.000	1517.58	17.97
70.0	69.5	17.964	0.000	0.000	0.00	0.000	1517.70	17.95
80.0	79.4	17.934	0.000	0.000	0.00	0.000	1517.74	17.92
90.0	89.3	17.877	0.000	0.000	0.00	0.000	1517.75	17.86
100.0	99.3	17.846	0.000	0.000	0.00	0.000	1517.84	17.83
110.0	109.1	17.713	0.000	0.000	0.00	0.000	1517.74	17.59
120.0	119.0	17.318	0.000	0.000	0.00	0.000	1516.98	17.29
130.0	128.8	16.730	0.000	0.000	0.00	0.000	1515.34	16.70
140.0	138.7	16.242	0.000	0.000	0.00	0.000	1514.08	16.21
150.0	148.5	15.488	0.000	0.000	0.00	0.000	1512.01	15.46
160.0	158.3	15.032	0.000	0.000	0.00	0.000	1510.90	15.00
170.0	168.2	14.710	0.000	0.000	0.00	0.000	1510.22	14.67
180.0	178.0	14.248	0.000	0.000	0.00	0.000	1508.97	14.21
190.0	187.8	13.855	0.000	0.000	0.00	0.000	1508.02	13.81
200.0	197.7	13.658	0.000	0.000	0.00	0.000	1507.65	13.61
210.0	207.5	13.372	0.000	0.000	0.00	0.000	1507.04	13.33
220.0	217.3	12.956	0.000	0.000	0.00	0.000	1505.88	12.91
230.0	227.2	12.529	0.000	0.000	0.00	0.000	1504.71	12.48
240.0	237.0	12.144	0.000	0.000	0.00	0.000	1503.71	12.09
250.0	246.8	11.769	0.000	0.000	0.00	0.000	1502.65	11.72
260.0	256.6	11.307	0.000	0.000	0.00	0.000	1501.30	11.25
270.0	266.4	10.987	0.000	0.000	0.00	0.000	1500.50	10.93
280.0	276.2	10.658	0.000	0.000	0.00	0.000	1499.64	10.60
290.0	286.0	10.422	0.000	0.000	0.00	0.000	1499.07	10.36
300.0	295.8	10.030	0.000	0.000	0.00	0.000	1497.94	9.97
310.0	305.6	9.166	0.000	0.000	0.00	0.000	1495.50	9.10
320.0	315.4	8.685	0.000	0.000	0.00	0.000	1494.52	8.62
330.0	325.2	7.754	0.000	0.000	0.00	0.000	1492.61	7.68
340.0	335.0	6.894	0.000	0.000	0.00	0.000	1490.85	6.82
350.0	344.8	6.277	0.000	0.000	0.00	0.000	1490.01	6.19
360.0	354.6	5.572	0.000	0.000	0.00	0.000	1488.87	5.48
370.0	364.4	4.953	0.000	0.000	0.00	0.000	1488.00	4.86
380.0	374.2	4.457	0.000	0.000	0.00	0.000	1487.64	4.36
390.0	384.0	4.044	0.000	0.000	0.00	0.000	1487.58	3.94
400.0	393.8	3.673	0.000	0.000	0.00	0.000	1487.70	3.57
410.0	403.6	3.344	0.000	0.000	0.00	0.000	1487.98	3.23
420.0	413.4	3.012	0.000	0.000	0.00	0.000	1488.26	2.89
430.0	423.2	2.781	0.000	0.000	0.00	0.000	1488.97	2.66
440.0	433.0	2.554	0.000	0.000	0.00	0.000	1489.69	2.43
450.0	442.8	2.391	0.000	0.000	0.00	0.000	1490.66	2.26
460.0	452.6	2.279	0.000	0.000	0.00	0.000	1491.88	2.14
470.0	462.4	2.271	0.000	0.000	0.00	0.000	1492.00	2.13

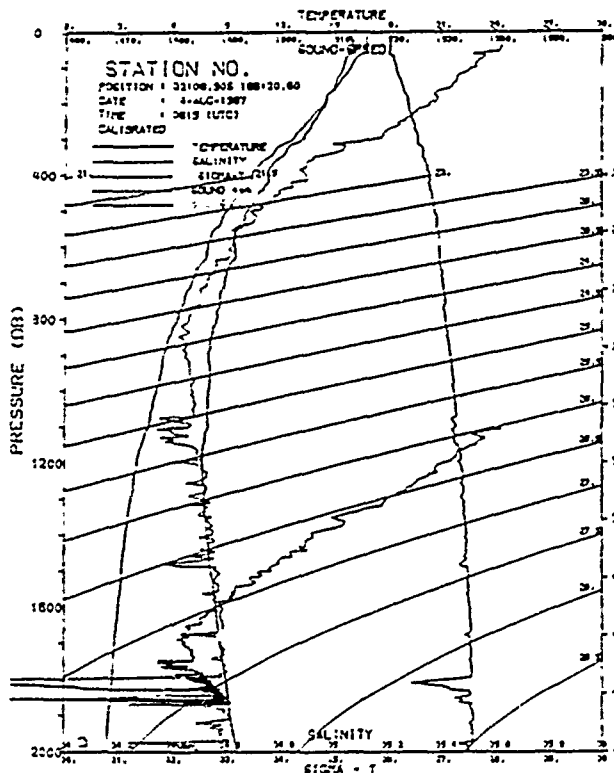


SHIP : HNS COOK - Plessey  
 STATION NUMBER : 9 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 04-AUG-1987 (DAY NUMBER 216)  
 START TIME : 0615 GMT - 2  
 CRUISE : CK12/87  
 POSITION : 31:09.905 173:29.60E  
 CAST DEPTH : 2090 METRES  
 BOTTOM DEPTH : 4005 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
10.0	9.9	16.773	0.000	0.000	0.00	0.000	1513.16	16.77
20.0	19.9	16.773	0.000	0.000	0.00	0.000	1513.24	16.77
30.0	29.8	16.773	0.000	0.000	0.00	0.000	1513.43	16.77
40.0	39.7	16.773	0.000	0.000	0.00	0.000	1513.59	16.77
50.0	49.6	16.779	0.000	0.000	0.00	0.000	1513.77	16.77
60.0	59.6	16.905	0.000	0.000	0.00	0.000	1513.21	16.99
70.0	69.5	16.951	0.000	0.000	0.00	0.000	1512.42	16.99
80.0	79.4	16.933	0.000	0.000	0.00	0.000	1512.18	16.99
90.0	89.4	16.916	0.000	0.000	0.00	0.000	1511.97	16.99
100.0	99.3	15.914	0.000	0.000	0.00	0.000	1511.88	15.92
120.0	119.1	15.637	0.000	0.000	0.00	0.000	1511.20	15.62
140.0	139.0	15.290	0.000	0.000	0.00	0.000	1510.47	15.27
160.0	158.8	15.022	0.000	0.000	0.00	0.000	1509.89	15.00
180.0	178.7	14.546	0.000	0.000	0.00	0.000	1508.69	14.52
200.0	198.5	14.420	0.000	0.000	0.00	0.000	1508.58	14.39
220.0	218.3	14.074	0.000	0.000	0.00	0.000	1508.56	14.39
240.0	238.2	13.752	0.000	0.000	0.00	0.000	1506.94	13.72
260.0	258.0	13.361	0.000	0.000	0.00	0.000	1505.97	13.32
280.0	277.9	13.018	0.000	0.000	0.00	0.000	1505.07	12.98
300.0	297.7	12.728	0.000	0.000	0.00	0.000	1504.39	12.69
320.0	317.5	11.945	0.000	0.000	0.00	0.000	1501.86	11.90
340.0	337.4	11.508	0.000	0.000	0.00	0.000	1501.06	11.56
360.0	357.2	11.049	0.000	0.000	0.00	0.000	1499.29	11.00
380.0	377.0	10.666	0.000	0.000	0.00	0.000	1498.33	10.62
400.0	396.8	10.449	0.000	0.000	0.00	0.000	1497.93	10.40
420.0	416.6	10.402	0.000	0.000	0.00	0.000	1498.01	10.35
440.0	436.5	10.050	0.000	0.000	0.00	0.000	1496.97	10.00
460.0	456.3	9.660	0.000	0.000	0.00	0.000	1495.86	9.61
480.0	476.1	9.337	0.000	0.000	0.00	0.000	1494.95	9.28
500.0	495.9	9.008	0.000	0.000	0.00	0.000	1494.02	8.95
520.0	515.4	8.336	0.000	0.000	0.00	0.000	1492.29	8.28
540.0	535.0	7.992	0.000	0.000	0.00	0.000	1491.85	7.93
560.0	554.7	7.047	0.000	0.000	0.00	0.000	1489.74	6.98
580.0	574.2	6.301	0.000	0.000	0.00	0.000	1488.40	6.23
600.0	593.8	5.505	0.000	0.000	0.00	0.000	1486.85	5.43
620.0	613.4	5.104	0.000	0.000	0.00	0.000	1486.91	5.02
640.0	633.0	4.682	0.000	0.000	0.00	0.000	1486.81	4.59
660.0	652.6	4.021	0.000	0.000	0.00	0.000	1485.84	3.93
680.0	672.2	3.720	0.000	0.000	0.00	0.000	1486.18	3.62
700.0	691.8	3.428	0.000	0.000	0.00	0.000	1486.62	3.32
720.0	711.4	3.234	0.000	0.000	0.00	0.000	1487.50	3.12
740.0	731.0	3.034	0.000	0.000	0.00	0.000	1488.32	2.92
760.0	750.6	2.849	0.000	0.000	0.00	0.000	1489.21	2.72
780.0	770.2	2.707	0.000	0.000	0.00	0.000	1490.25	2.58
800.0	789.8	2.512	0.000	0.000	0.00	0.000	1491.13	2.38
820.0	809.4	2.402	0.000	0.000	0.00	0.000	1492.34	2.26
840.0	829.0	2.293	0.000	0.000	0.00	0.000	1493.58	2.14
860.0	848.6	2.290	0.000	0.000	0.00	0.000	1493.65	2.14

SHIP : HNS COOK - Plessey  
 STATION NUMBER : 10 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 05-AUG-1987 (DAY NUMBER 217)  
 START TIME : 0608 GMT - 2  
 CRUISE : CK12/87  
 POSITION : 31:40.005 173:29.70E  
 CAST DEPTH : 2011 METRES  
 BOTTOM DEPTH : 2842 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
10.0	9.9	17.046	0.000	0.000	0.00	0.000	1514.04	17.04
20.0	19.9	17.043	0.000	0.000	0.00	0.000	1514.17	17.04
30.0	29.8	17.030	0.000	0.000	0.00	0.000	1514.30	17.03
40.0	39.7	17.020	0.000	0.000	0.00	0.000	1514.45	17.01
50.0	49.6	17.015	0.000	0.000	0.00	0.000	1514.62	17.01
60.0	59.6	17.002	0.000	0.000	0.00	0.000	1514.72	16.99
70.0	69.5	16.994	0.000	0.000	0.00	0.000	1514.84	16.98
80.0	79.4	16.982	0.000	0.000	0.00	0.000	1515.00	16.97
90.0	89.4	16.972	0.000	0.000	0.00	0.000	1515.11	16.96
100.0	99.3	16.965	0.000	0.000	0.00	0.000	1515.26	16.95
120.0	119.1	16.926	0.000	0.000	0.00	0.000	1515.45	16.91
140.0	139.0	16.624	0.000	0.000	0.00	0.000	1514.73	16.60
160.0	158.8	15.828	0.000	0.000	0.00	0.000	1512.55	15.80
180.0	178.7	15.586	0.000	0.000	0.00	0.000	1512.03	15.56
200.0	198.5	15.287	0.000	0.000	0.00	0.000	1511.45	15.25
220.0	218.4	15.076	0.000	0.000	0.00	0.000	1511.08	15.04
240.0	238.2	14.780	0.000	0.000	0.00	0.000	1510.40	14.74
260.0	258.0	14.392	0.000	0.000	0.00	0.000	1509.48	14.35
280.0	277.9	14.029	0.000	0.000	0.00	0.000	1508.48	13.99
300.0	297.7	13.578	0.000	0.000	0.00	0.000	1507.35	13.54
320.0	317.5	13.137	0.000	0.000	0.00	0.000	1506.19	13.09
340.0	337.4	12.945	0.000	0.000	0.00	0.000	1505.81	12.90
360.0	357.2	12.808	0.000	0.000	0.00	0.000	1505.71	12.75
380.0	377.0	12.432	0.000	0.000	0.00	0.000	1504.69	12.38
400.0	396.8	12.018	0.000	0.000	0.00	0.000	1503.58	11.97
420.0	416.7	11.791	0.000	0.000	0.00	0.000	1502.91	11.74
440.0	436.5	11.166	0.000	0.000	0.00	0.000	1502.08	11.11
460.0	456.3	10.868	0.000	0.000	0.00	0.000	1500.42	10.81
480.0	476.1	10.650	0.000	0.000	0.00	0.000	1499.72	10.59
500.0	495.9	10.251	0.000	0.000	0.00	0.000	1498.79	10.19
520.0	515.4	9.576	0.000	0.000	0.00	0.000	1496.99	9.51
540.0	535.0	8.967	0.000	0.000	0.00	0.000	1495.56	8.90
560.0	554.7	7.668	0.000	0.000	0.00	0.000	1492.13	7.60
580.0	574.2	7.061	0.000	0.000	0.00	0.000	1491.43	6.98
600.0	593.8	6.254	0.000	0.000	0.00	0.000	1489.87	6.17
620.0	613.4	5.606	0.000	0.000	0.00	0.000	1488.94	5.52
640.0	633.0	4.935	0.000	0.000	0.00	0.000	1487.80	4.84
660.0	652.6	4.277	0.000	0.000	0.00	0.000	1486.73	4.18
680.0	672.2	3.880	0.000	0.000	0.00	0.000	1485.84	3.78
700.0	691.8	3.515	0.000	0.000	0.00	0.000	1485.31	3.41
720.0	711.4	3.281	0.000	0.000	0.00	0.000	1487.71	3.17
740.0	731.0	3.012	0.000	0.000	0.00	0.000	1488.22	2.89
760.0	750.6	2.813	0.000	0.000	0.00	0.000	1489.09	2.69
780.0	770.2	2.690	0.000	0.000	0.00	0.000	1490.22	2.56
800.0	789.8	2.538	0.000	0.000	0.00	0.000	1491.23	2.40
820.0	809.4	2.406	0.000	0.000	0.00	0.000	1492.33	2.26
840.0	829.0	2.365	0.000	0.000	0.00	0.000	1492.67	2.22

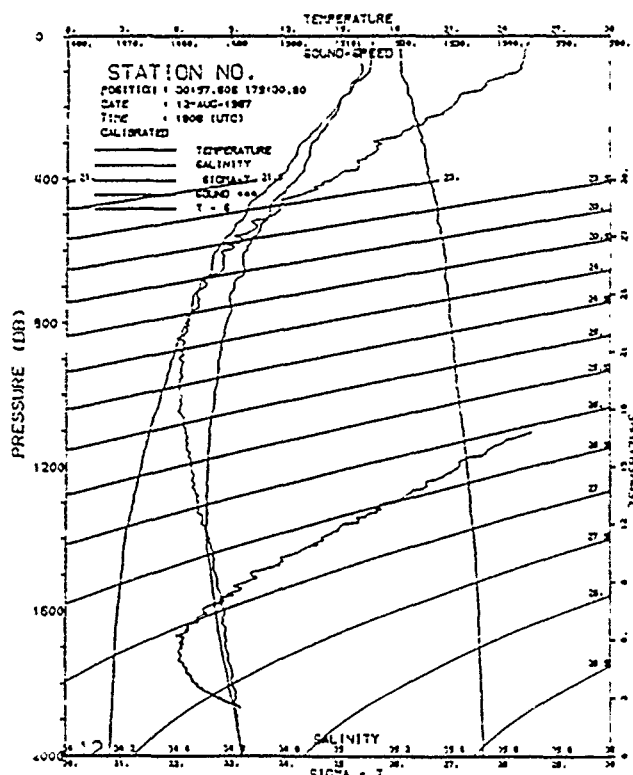
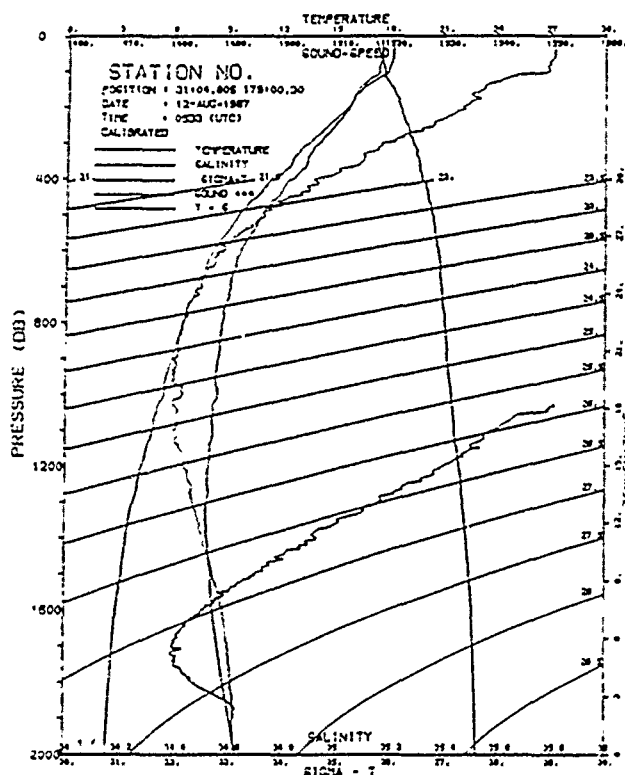


SHIP : HMAS COOK - Plessey  
 STATION NUMBER : 31 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 12-AUG-1987 (DAY NUMBER 224)  
 START TIME : 0533 GMT - Z  
 CRUISE : CR12/87  
 POSITION : 31:04.805 179:00.30E  
 CAST DEPTH : 1992 METRES  
 BOTTOM DEPTH : 2963 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
10.0	9.9	18.168	0.000	0.000	0.00	0.000	1517.42	18.17
20.0	19.9	18.167	0.000	0.000	0.00	0.000	1517.56	18.16
30.0	29.8	18.165	0.000	0.000	0.00	0.000	1517.76	18.16
40.0	39.7	18.165	0.000	0.000	0.00	0.000	1517.89	18.16
50.0	49.6	18.146	0.000	0.000	0.00	0.000	1518.02	18.14
60.0	59.6	18.139	0.000	0.000	0.00	0.000	1518.16	18.13
70.0	69.5	18.104	0.000	0.000	0.00	0.000	1518.20	18.09
80.0	79.4	18.026	0.000	0.000	0.00	0.000	1518.13	18.01
90.0	89.4	17.926	0.000	0.000	0.00	0.000	1517.97	17.91
100.0	99.3	17.869	0.000	0.000	0.00	0.000	1517.99	17.85
120.0	119.1	17.275	0.000	0.000	0.00	0.000	1516.31	17.26
140.0	139.0	16.620	0.000	0.000	0.00	0.000	1514.60	16.60
160.0	158.8	16.198	0.000	0.000	0.00	0.000	1513.64	16.17
180.0	178.7	15.911	0.000	0.000	0.00	0.000	1513.18	15.90
200.0	198.5	15.616	0.000	0.000	0.00	0.000	1512.45	15.58
220.0	218.4	15.268	0.000	0.000	0.00	0.000	1511.62	15.23
240.0	238.2	14.804	0.000	0.000	0.00	0.000	1510.43	14.77
250.0	258.0	14.379	0.000	0.000	0.00	0.000	1509.24	14.34
280.0	277.9	13.913	0.000	0.000	0.00	0.000	1508.05	13.87
300.0	297.7	13.488	0.000	0.000	0.00	0.000	1506.93	13.45
320.0	317.5	12.994	0.000	0.000	0.00	0.000	1505.62	12.95
340.0	337.4	12.653	0.000	0.000	0.00	0.000	1504.35	12.61
360.0	357.2	12.484	0.000	0.000	0.00	0.000	1504.51	12.44
380.0	377.0	12.083	0.000	0.000	0.00	0.000	1503.31	12.03
400.0	396.9	11.549	0.000	0.000	0.00	0.000	1501.72	11.50
420.0	416.7	11.113	0.000	0.000	0.00	0.000	1500.54	11.06
440.0	436.5	10.816	0.000	0.000	0.00	0.000	1499.76	10.76
460.0	456.3	10.372	0.000	0.000	0.00	0.000	1498.43	10.32
480.0	476.1	9.985	0.000	0.000	0.00	0.000	1497.34	9.93
500.0	496.0	9.586	0.000	0.000	0.00	0.000	1496.20	9.53
550.0	545.5	8.939	0.000	0.000	0.00	0.000	1494.56	8.88
600.0	595.0	8.208	0.000	0.000	0.00	0.000	1492.61	8.14
700.0	694.0	7.299	0.000	0.000	0.00	0.000	1490.70	7.23
800.0	793.0	6.515	0.000	0.000	0.00	0.000	1489.18	6.44
900.0	891.9	5.941	0.000	0.000	0.00	0.000	1488.50	5.86
1000.0	990.7	5.473	0.000	0.000	0.00	0.000	1488.31	5.39
1100.0	1089.5	4.857	0.000	0.000	0.00	0.000	1487.41	4.76
1200.0	1188.3	4.253	0.000	0.000	0.00	0.000	1486.61	4.16
1300.0	1287.0	3.808	0.000	0.000	0.00	0.000	1486.42	3.71
1400.0	1385.7	3.425	0.000	0.000	0.00	0.000	1486.53	3.32
1500.0	1484.3	3.178	0.000	0.000	0.00	0.000	1487.18	3.07
1600.0	1582.9	2.876	0.000	0.000	0.00	0.000	1487.61	2.76
1700.0	1681.4	2.715	0.000	0.000	0.00	0.000	1488.63	2.59
1800.0	1779.9	2.563	0.000	0.000	0.00	0.000	1489.66	2.43
1900.0	1878.4	2.449	0.000	0.000	0.00	0.000	1490.83	2.31
2000.0	1976.8	2.340	0.000	0.000	0.00	0.000	1492.05	2.20
2010.0	1986.6	2.330	0.000	0.000	0.00	0.000	1492.21	2.19

SHIP : HMAS COOK - Plessey  
 STATION NUMBER : 12 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 12-AUG-1987 (DAY NUMBER 224)  
 START TIME : 1806 GMT - Z  
 CRUISE : CR12/87  
 POSITION : 30:57.605 179:30.80W  
 CAST DEPTH : 2008 METRES  
 BOTTOM DEPTH : 2566 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
10.0	9.9	16.783	0.000	0.000	0.00	0.000	1513.33	16.78
20.0	19.9	16.771	0.000	0.000	0.00	0.000	1513.41	16.77
30.0	29.8	16.754	0.000	0.000	0.00	0.000	1513.50	16.75
40.0	39.7	16.735	0.000	0.000	0.00	0.000	1513.64	16.73
50.0	49.6	16.707	0.000	0.000	0.00	0.000	1513.69	16.70
60.0	59.6	16.691	0.000	0.000	0.00	0.000	1513.83	16.68
70.0	69.5	16.680	0.000	0.000	0.00	0.000	1513.94	16.67
80.0	79.4	16.662	0.000	0.000	0.00	0.000	1514.05	16.65
90.0	89.4	16.629	0.000	0.000	0.00	0.000	1514.11	16.61
100.0	99.3	16.594	0.000	0.000	0.00	0.000	1514.12	16.58
120.0	119.1	16.176	0.000	0.000	0.00	0.000	1513.08	16.16
140.0	139.0	15.702	0.000	0.000	0.00	0.000	1511.91	15.68
160.0	158.8	15.458	0.000	0.000	0.00	0.000	1511.36	15.43
180.0	178.7	14.948	0.000	0.000	0.00	0.000	1511.09	14.92
200.0	198.5	14.734	0.000	0.000	0.00	0.000	1509.72	14.70
220.0	218.4	14.503	0.000	0.000	0.00	0.000	1509.25	14.47
240.0	238.2	13.993	0.000	0.000	0.00	0.000	1507.86	13.96
250.0	258.0	13.692	0.000	0.000	0.00	0.000	1507.12	13.65
280.0	277.9	13.308	0.000	0.000	0.00	0.000	1506.18	13.27
300.0	297.7	12.819	0.000	0.000	0.00	0.000	1504.74	12.78
320.0	317.5	12.644	0.000	0.000	0.00	0.000	1504.55	12.60
340.0	337.4	12.472	0.000	0.000	0.00	0.000	1504.21	12.43
360.0	357.2	12.207	0.000	0.000	0.00	0.000	1503.58	12.15
380.0	377.0	12.014	0.000	0.000	0.00	0.000	1503.16	11.96
400.0	396.9	11.600	0.000	0.000	0.00	0.000	1502.07	11.55
420.0	416.7	11.113	0.000	0.000	0.00	0.000	1500.60	11.06
440.0	436.5	10.771	0.000	0.000	0.00	0.000	1499.63	10.72
460.0	456.3	10.207	0.000	0.000	0.00	0.000	1497.90	10.15
480.0	476.1	9.920	0.000	0.000	0.00	0.000	1497.20	9.86
500.0	496.0	9.811	0.000	0.000	0.00	0.000	1497.15	9.75
550.0	545.5	9.046	0.000	0.000	0.00	0.000	1495.04	8.99
600.0	595.0	8.238	0.000	0.000	0.00	0.000	1492.74	8.17
700.0	694.0	7.339	0.000	0.000	0.00	0.000	1490.90	7.27
800.0	793.0	6.567	0.000	0.000	0.00	0.000	1489.46	6.49
900.0	891.9	5.849	0.000	0.000	0.00	0.000	1488.16	5.77
1000.0	990.7	5.235	0.000	0.000	0.00	0.000	1487.37	5.15
1100.0	1089.5	4.578	0.000	0.000	0.00	0.000	1486.36	4.49
1200.0	1188.3	4.120	0.000	0.000	0.00	0.000	1486.13	4.02
1300.0	1287.0	3.695	0.000	0.000	0.00	0.000	1486.03	3.60
1400.0	1385.7	3.282	0.000	0.000	0.00	0.000	1486.01	3.18
1500.0	1484.3	3.074	0.000	0.000	0.00	0.000	1486.80	2.96
1600.0	1582.9	2.864	0.000	0.000	0.00	0.000	1487.58	2.75
1700.0	1681.5	2.752	0.000	0.000	0.00	0.000	1488.75	2.63
1800.0	1779.9	2.643	0.000	0.000	0.00	0.000	1490.02	2.51
1900.0	1878.4	2.553	0.000	0.000	0.00	0.000	1491.31	2.42
2000.0	1976.8	2.442	0.000	0.000	0.00	0.000	1492.54	2.30
2030.0	2006.3	2.403	0.000	0.000	0.00	0.000	1492.82	2.26



SHIP : IMAS COOK - Plessey  
 STATION NUMBER : 13 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 13-AUG-1987 (DAY NUMBER 225)  
 START TIME : 0235 GMT - 2  
 CRUISE : CR12/87  
 POSITION : 30:29.40S 175:00.90W  
 CAST DEPTH : 5147 METRES  
 BOTTOM DEPTH : 5371 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
10.0	9.9	17.572	0.000	0.000	0.00	0.000	1515.66	17.57 47 0.002 0.005
20.0	19.9	17.572	0.000	0.000	0.00	0.000	1515.83	17.57 51 0.001 0.005
30.0	29.8	17.574	0.000	0.000	0.00	0.000	1516.00	17.57 49 0.004 0.005
40.0	39.7	17.575	0.000	0.000	0.00	0.000	1516.18	17.57 54 0.005 0.007
50.0	49.7	17.568	0.000	0.000	0.00	0.000	1516.33	17.56 49 0.005 0.004
60.0	59.6	17.570	0.000	0.000	0.00	0.000	1516.47	17.56 36 0.004 0.002
70.0	69.5	17.571	0.000	0.000	0.00	0.000	1516.63	17.56 40 0.002 0.004
80.0	79.4	17.572	0.000	0.000	0.00	0.000	1516.84	17.56 45 0.000 0.002
90.0	89.4	17.572	0.000	0.000	0.00	0.000	1516.99	17.56 47 0.002 0.004
100.0	99.3	17.558	0.000	0.000	0.00	0.000	1517.10	17.54 56 0.005 0.008
120.0	119.1	17.453	0.000	0.000	0.00	0.000	1517.01	17.43 47 0.031 0.059
140.0	139.0	16.767	0.000	0.000	0.00	0.000	1515.14	16.74 30 0.073 0.082
160.0	158.8	16.166	0.000	0.000	0.00	0.000	1513.58	16.14 47 0.071 0.069
180.0	178.7	15.583	0.000	0.000	0.00	0.000	1512.39	15.65 26 0.071 0.081
200.0	198.5	15.201	0.000	0.000	0.00	0.000	1511.14	15.17 36 0.064 0.052
220.0	218.4	14.796	0.000	0.000	0.00	0.000	1510.18	14.76 56 0.069 0.074
240.0	238.2	14.355	0.000	0.000	0.00	0.000	1509.05	14.32 51 0.061 0.073
260.0	258.1	14.003	0.000	0.000	0.00	0.000	1508.12	13.96 27 0.055 0.058
280.0	277.9	13.700	0.000	0.000	0.00	0.000	1507.48	13.66 47 0.018 0.020
300.0	297.7	13.238	0.000	0.000	0.00	0.000	1506.14	13.20 32 0.051 0.065
320.0	317.5	12.791	0.000	0.000	0.00	0.000	1504.98	12.75 34 0.037 0.028
340.0	337.4	12.404	0.000	0.000	0.00	0.000	1503.83	12.36 32 0.089 0.092
360.0	357.2	11.953	0.000	0.000	0.00	0.000	1502.63	11.91 38 0.073 0.070
380.0	377.1	11.478	0.000	0.000	0.00	0.000	1501.20	11.43 34 0.118 0.129
400.0	396.9	11.044	0.000	0.000	0.00	0.000	1499.94	10.99 32 0.048 0.051
420.0	416.7	10.626	0.000	0.000	0.00	0.000	1498.77	10.57 39 0.071 0.078
440.0	436.5	10.184	0.000	0.000	0.00	0.000	1497.52	10.13 34 0.017 0.018
460.0	456.3	9.746	0.000	0.000	0.00	0.000	1496.92	9.89 28 0.048 0.050
480.0	476.2	9.311	0.000	0.000	0.00	0.000	1495.69	9.46 28 0.014 0.011
500.0	496.0	8.876	0.000	0.000	0.00	0.000	1495.05	9.22 29 0.037 0.043
520.0	515.8	8.454	0.000	0.000	0.00	0.000	1493.11	8.49 34 0.070 0.073
540.0	535.6	8.027	0.000	0.000	0.00	0.000	1491.86	7.96 29 0.059 0.055
560.0	555.4	7.598	0.000	0.000	0.00	0.000	1489.46	6.91 34 0.013 0.016
580.0	575.2	7.172	0.000	0.000	0.00	0.000	1488.24	6.20 34 0.015 0.015
600.0	595.0	6.746	0.000	0.000	0.00	0.000	1487.32	5.56 35 0.019 0.014
620.0	614.8	6.321	0.000	0.000	0.00	0.000	1486.49	4.95 34 0.014 0.012
640.0	634.6	5.896	0.000	0.000	0.00	0.000	1485.98	4.40 24 0.005 0.005
660.0	654.4	5.471	0.000	0.000	0.00	0.000	1485.72	3.94 24 0.008 0.008
680.0	674.2	5.046	0.000	0.000	0.00	0.000	1485.01	3.59 36 0.004 0.004
700.0	694.0	4.621	0.000	0.000	0.00	0.000	1484.11	3.22 27 0.018 0.011
720.0	713.8	4.196	0.000	0.000	0.00	0.000	1483.66	2.94 27 0.006 0.005
740.0	733.6	3.771	0.000	0.000	0.00	0.000	1482.57	2.75 22 0.003 0.001
760.0	753.4	3.346	0.000	0.000	0.00	0.000	1481.50	2.57 29 0.005 0.005
780.0	773.2	2.921	0.000	0.000	0.00	0.000	1480.71	2.44 25 0.004 0.004
800.0	793.0	2.496	0.000	0.000	0.00	0.000	1480.05	2.36 24 0.003 0.001
820.0	812.8	2.071	0.000	0.000	0.00	0.000	1479.44	2.28 29 0.003 0.004
840.0	832.6	1.646	0.000	0.000	0.00	0.000	1478.87	2.21 32 0.006 0.003
860.0	852.4	1.221	0.000	0.000	0.00	0.000	1478.23	2.14 33 0.002 0.002
880.0	872.2	0.796	0.000	0.000	0.00	0.000	1477.67	2.06 33 0.000 0.002
900.0	892.0	0.371	0.000	0.000	0.00	0.000	1478.09	1.99 38 0.002 0.004
920.0	911.8	0.000	0.000	0.000	0.00	0.000	1478.53	1.92 30 0.001 0.005
940.0	931.6	0.000	0.000	0.000	0.00	0.000	1500.99	1.86 27 0.005 0.004

SHIP : IMAS COOK - Plessey  
 STATION NUMBER : 14 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 15-AUG-1987 (DAY NUMBER 228)  
 START TIME : 0220 GMT - 2  
 CRUISE : CR12/87  
 POSITION : 30:04.00S 170:40.00W  
 CAST DEPTH : 1988 METRES  
 BOTTOM DEPTH : 5658 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
0.0	0.0	17.082	0.000	0.000	0.00	0.000	1514.05	17.08 15 0.005 0.003
10.0	9.9	17.079	0.000	0.000	0.00	0.000	1514.16	17.08 58 0.004 0.004
20.0	19.9	17.062	0.000	0.000	0.00	0.000	1514.26	17.06 56 0.010 0.006
30.0	29.8	17.046	0.000	0.000	0.00	0.000	1514.39	17.04 49 0.001 0.004
40.0	39.7	17.016	0.000	0.000	0.00	0.000	1514.56	17.04 43 0.000 0.002
50.0	49.7	17.046	0.000	0.000	0.00	0.000	1514.74	17.04 39 0.000 0.004
60.0	59.6	17.046	0.000	0.000	0.00	0.000	1514.88	17.04 53 0.000 0.002
70.0	69.5	17.047	0.000	0.000	0.00	0.000	1515.07	17.04 44 0.003 0.005
80.0	79.4	17.047	0.000	0.000	0.00	0.000	1515.22	17.03 49 0.002 0.000
90.0	89.4	17.048	0.000	0.000	0.00	0.000	1515.39	17.03 46 0.004 0.004
100.0	99.3	17.053	0.000	0.000	0.00	0.000	1515.54	17.04 49 0.004 0.002
120.0	119.1	17.054	0.000	0.000	0.00	0.000	1515.87	17.03 46 0.003 0.001
140.0	139.0	17.049	0.000	0.000	0.00	0.000	1516.18	17.03 39 0.004 0.004
160.0	158.8	16.722	0.000	0.000	0.00	0.000	1515.15	16.70 48 0.286 0.408
180.0	178.7	15.716	0.000	0.000	0.00	0.000	1512.53	15.69 36 0.028 0.032
200.0	198.5	15.145	0.000	0.000	0.00	0.000	1511.64	15.31 60 0.105 0.112
220.0	218.4	15.048	0.000	0.000	0.00	0.000	1511.02	15.01 44 0.037 0.045
240.0	238.2	14.445	0.000	0.000	0.00	0.000	1510.00	14.61 64 0.034 0.036
260.0	258.1	14.379	0.000	0.000	0.00	0.000	1509.44	14.34 39 0.033 0.050
280.0	277.9	13.908	0.000	0.000	0.00	0.000	1508.11	13.87 49 0.079 0.116
300.0	297.7	13.280	0.000	0.000	0.00	0.000	1506.16	13.24 55 0.135 0.190
320.0	317.5	12.591	0.000	0.000	0.00	0.000	1504.19	12.55 36 0.059 0.069
340.0	337.4	12.106	0.000	0.000	0.00	0.000	1502.86	12.06 32 0.063 0.075
360.0	357.2	11.580	0.000	0.000	0.00	0.000	1501.20	11.53 34 0.089 0.095
380.0	377.1	10.924	0.000	0.000	0.00	0.000	1499.06	10.88 24 0.117 0.117
400.0	396.9	10.533	0.000	0.000	0.00	0.000	1498.16	10.48 28 0.018 0.019
420.0	416.7	10.219	0.000	0.000	0.00	0.000	1497.27	10.17 32 0.063 0.069
440.0	436.5	9.706	0.000	0.000	0.00	0.000	1495.70	9.66 33 0.043 0.042
460.0	456.3	9.258	0.000	0.000	0.00	0.000	1494.30	9.22 25 0.055 0.039
480.0	476.2	8.954	0.000	0.000	0.00	0.000	1493.49	8.90 27 0.048 0.053
500.0	496.0	8.669	0.000	0.000	0.00	0.000	1492.75	8.61 30 0.047 0.044
520.0	515.8	8.097	0.000	0.000	0.00	0.000	1491.40	8.04 27 0.019 0.017
540.0	535.6	7.604	0.000	0.000	0.00	0.000	1490.24	7.54 32 0.022 0.027
560.0	555.4	7.087	0.000	0.000	0.00	0.000	1489.10	6.82 24 0.011 0.009
580.0	575.2	6.302	0.000	0.000	0.00	0.000	1488.33	6.23 32 0.025 0.021
600.0	595.0	5.573	0.000	0.000	0.00	0.000	1487.38	5.59 34 0.023 0.022
620.0	614.8	4.972	0.000	0.000	0.00	0.000	1486.24	4.89 26 0.025 0.020
640.0	634.6	4.485	0.000	0.000	0.00	0.000	1485.89	4.40 28 0.016 0.012
660.0	654.4	4.012	0.000	0.000	0.00	0.000	1485.60	3.92 37 0.022 0.016
680.0	674.2	3.515	0.000	0.000	0.00	0.000	1485.25	3.42 30 0.007 0.006
700.0	694.0	3.193	0.000	0.000	0.00	0.000	1485.57	3.09 31 0.013 0.007
720.0	713.8	2.734	0.000	0.000	0.00	0.000	1486.17	2.83 29 0.010 0.005
740.0	733.6	2.361	0.000	0.000	0.00	0.000	1487.13	2.65 26 0.003 0.003
760.0	753.4	2.000	0.000	0.000	0.00	0.000	1488.31	2.52 30 0.005 0.000
780.0	773.2	1.519	0.000	0.000	0.00	0.000	1489.47	2.39 36 0.006 0.003
800.0	793.0	1.000	0.000	0.000	0.00	0.000	1490.83	2.30 34 0.003 0.004
820.0	812.8	0.431	0.000	0.000	0.00	0.000	1492.09	2.20 29 0.004 0.002
840.0	832.6	0.000	0.000	0.000	0.00	0.000	1492.20	2.19 83 0.005 0.005

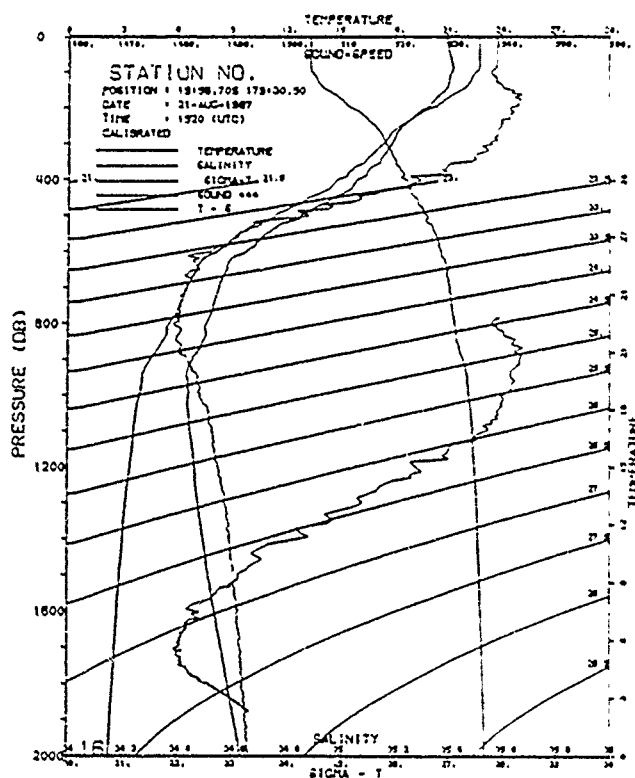
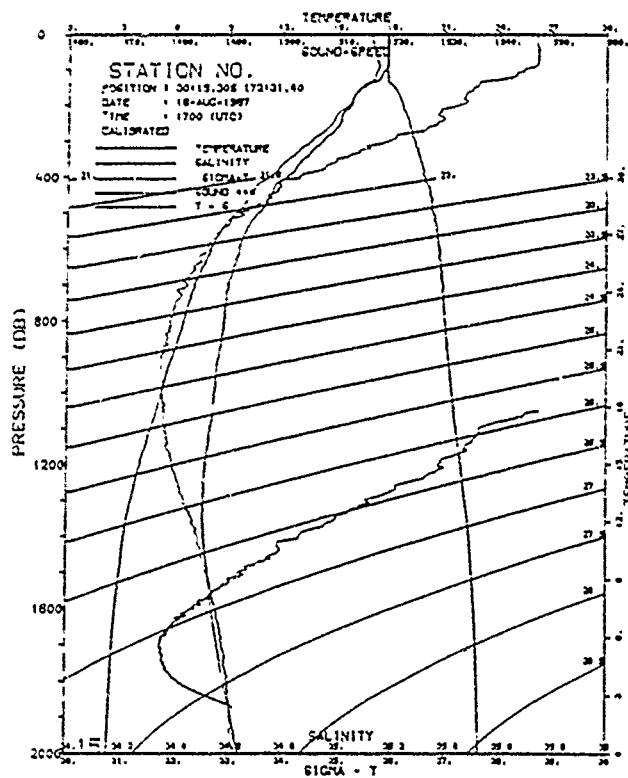
2700.0	2664.4	1.973	0.000	0.000	0.00	0.000	1502.36	1.77	35	0.004	0.001
2800.0	2762.5	1.935	0.000	0.000	0.00	0.000	1503.85	1.72	33	0.002	0.004
2900.0	2860.4	1.859	0.000	0.000	0.00	0.000	1505.31	1.64	34	0.004	0.002
3000.0	2956.4	1.794	0.000	0.000	0.00	0.000	1506.73	1.57	29	0.000	0.000
3100.0	3056.3	1.757	0.000	0.000	0.00	0.000	1508.27	1.52	22	0.004	0.002
3200.0	3154.2	1.714	0.000	0.000	0.00	0.000	1509.78	1.47	27	0.003	0.004
3300.0	3252.0	1.653	0.000	0.000	0.00	0.000	1511.27	1.40	29	0.004	0.004
3400.0	3349.8	1.574	0.000	0.000	0.00	0.000	1512.70	1.31	30	0.004	0.004
3500.0	3447.5	1.502	0.000	0.000	0.00	0.000	1514.08	1.23	31	0.003	0.003
3600.0	3545.2	1.420	0.000	0.000	0.00	0.000	1515.44	1.14	20	0.004	0.004
3700.0	3642.8	1.342	0.000	0.000	0.00	0.000	1516.81	1.06	18	0.005	0.003
3800.0	3740.5	1.274	0.000	0.000	0.00	0.000	1518.22	0.98	32	0.004	0.000
3900.0	3838.0	1.215	0.000	0.000	0.00	0.000	1519.71	0.91	25	0.004	0.000
4000.0	3935.2	1.157	0.000	0.000	0.00	0.000	1521.23	0.85	38	0.005	0.003
4100.0	4033.3	1.122	0.000	0.000	0.00	0.000	1522.79	0.80	38	0.004	0.003
4200.0	4130.4	1.083	0.000	0.000	0.00	0.000	1524.30	0.76	35	0.004	0.002
4300.0	4227.8	1.062	0.000	0.000	0.00	0.000	1525.00	0.72	20	0.000	0.000
4400.0	4325.2	1.041	0.000	0.000	0.00	0.000	1527.69	0.69	22	0.004	0.004
4500.0	4422.5	1.037	0.000	0.000	0.00	0.000	1529.40	0.67	35	0.005	0.001
4600.0	4519.7	1.029	0.000	0.000	0.00	0.000	1531.12	0.66	34	0.004	0.002
4700.0	4617.0	1.025	0.000	0.000	0.00	0.000	1532.87	0.64	23	0.003	0.003
4800.0	4714.1	1.026	0.000	0.000	0.00	0.000	1534.66	0.63	27	0.004	0.000
4900.0	4811.3	1.030	0.000	0.000	0.00	0.000	1536.40	0.62	31	0.004	0.003
5000.0	4908.4	1.032	0.000	0.000	0.00	0.900	1538.21	0.61	24	0.004	0.000
5100.0	5005.4	1.042	0.000	0.000	0.00	0.000	1539.98	0.61	19	0.004	0.003
5200.0	5102.4	1.050	0.000	0.000	0.00	0.000	1541.82	0.60	16	0.004	0.019
5300.0	5199.4	1.053	0.000	0.000	0.00	0.000	1543.59	0.59	25	0.004	0.002
5400.0	5296.3	1.063	0.000	0.000	0.00	0.000	1545.36	0.59	31	0.004	0.003
5450.0	5344.8	1.070	0.000	0.000	0.00	0.000	1546.23	0.59	115	0.004	0.000

SHIP : HMAS COOK - Plessey  
 STATION NUMBER : 15 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 16-AUG-1987 (DAY NUMBER 228)  
 START TIME : 1700 GMT - Z  
 CRUISE : CR12/87  
 POSITION : 30:15.30S 172:31.40W  
 CAST DEPTH : 1997 METRES  
 BOTTOM DEPTH : 5750 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
0.0	0.0	17.764	0.000	0.000	0.00	0.000	1516.16	17.76 7 0.000 0.000
10.0	9.9	17.753	0.000	0.000	0.00	0.000	1516.29	17.76 52 0.003 0.004
20.0	19.9	17.764	0.000	0.000	0.00	0.000	1516.47	17.76 51 0.000 0.003
30.0	29.8	17.763	0.000	0.000	0.00	0.000	1516.60	17.76 45 0.002 0.004
40.0	39.7	17.764	0.000	0.000	0.00	0.000	1516.79	17.76 45 0.000 0.005
50.0	49.7	17.764	0.000	0.000	0.00	0.000	1516.97	17.76 31 0.000 0.003
60.0	59.6	17.764	0.000	0.000	0.00	0.000	1517.13	17.75 47 0.001 0.004
70.0	69.5	17.765	0.000	0.000	0.00	0.000	1517.30	17.75 57 0.002 0.004
80.0	79.4	17.771	0.000	0.000	0.00	0.000	1517.47	17.76 33 0.004 0.003
90.0	89.4	17.764	0.000	0.000	0.00	0.000	1517.61	17.75 38 0.003 0.006
100.0	99.3	17.655	0.000	0.000	0.00	0.000	1517.31	17.64 43 0.070 0.089
120.0	119.1	17.389	0.000	0.000	0.00	0.000	1516.87	17.37 51 0.028 0.038
140.0	139.0	16.698	0.000	0.000	0.00	0.000	1514.86	16.67 43 0.092 0.078
160.0	158.8	16.151	0.000	0.000	0.00	0.000	1513.55	16.13 31 0.056 0.081
180.0	178.7	15.810	0.000	0.000	0.00	0.000	1512.83	15.78 41 0.032 0.036
200.0	198.5	15.572	0.000	0.000	0.00	0.000	1512.39	15.54 40 0.058 0.075
220.0	218.4	15.047	0.000	0.000	0.00	0.000	1510.98	15.01 40 0.054 0.052
240.0	238.2	14.813	0.000	0.000	0.00	0.000	1510.63	14.78 56 0.028 0.031
260.0	258.1	14.504	0.000	0.000	0.00	0.000	1509.89	14.47 75 0.077 0.086
280.0	277.9	14.074	0.000	0.000	0.00	0.000	1508.69	14.03 51 0.089 0.087
300.0	297.7	13.544	0.000	0.000	0.00	0.000	1507.23	13.50 49 0.079 0.091
320.0	317.6	13.010	0.000	0.000	0.00	0.000	1505.69	12.97 34 0.048 0.039
340.0	337.4	12.611	0.000	0.000	0.00	0.000	1504.57	12.56 32 0.089 0.116
360.0	357.2	12.070	0.000	0.000	0.00	0.000	1503.04	12.02 32 0.077 0.078
380.0	377.1	11.759	0.000	0.000	0.00	0.000	1502.26	11.71 29 0.035 0.045
400.0	396.9	11.235	0.000	0.000	0.00	0.000	1500.67	11.18 29 0.076 0.068
420.0	416.7	10.636	0.000	0.000	0.00	0.000	1498.74	10.58 28 0.067 0.057
440.0	436.5	10.343	0.000	0.000	0.00	0.000	1498.12	10.29 30 0.033 0.039
460.0	456.4	10.048	0.000	0.000	0.00	0.000	1497.36	9.99 27 0.017 0.017
480.0	476.2	9.817	0.000	0.000	0.00	0.000	1496.75	9.76 27 0.063 0.062
500.0	496.0	9.361	0.000	0.000	0.00	0.000	1495.33	9.30 24 0.087 0.077
550.0	545.5	8.590	0.000	0.000	0.00	0.000	1493.25	8.53 25 0.025 0.032
600.0	595.0	8.029	0.000	0.000	0.00	0.000	1491.94	7.97 27 0.011 0.008
700.0	694.0	7.109	0.000	0.000	0.00	0.000	1489.97	7.04 32 0.007 0.006
800.0	793.0	6.509	0.000	0.000	0.00	0.000	1489.17	6.43 32 0.015 0.016
900.0	891.9	5.857	0.000	0.000	0.00	0.000	1488.18	5.78 32 0.025 0.023
1000.0	990.8	5.263	0.000	0.000	0.00	0.000	1487.40	5.18 27 0.018 0.016
1100.0	1089.6	4.671	0.000	0.000	0.00	0.000	1486.67	4.58 36 0.018 0.017
1200.0	1188.4	4.050	0.000	0.000	0.30	0.000	1485.81	3.96 30 0.001 0.008
1300.0	1287.1	3.566	0.000	0.000	0.00	0.000	1485.46	3.47 26 0.009 0.006
1400.0	1385.8	3.185	0.000	0.000	0.00	0.000	1485.57	3.08 32 0.006 0.004
1500.0	1484.4	2.960	0.000	0.000	0.00	0.000	1486.34	2.85 33 0.013 0.007
1600.0	1583.0	2.760	0.000	0.000	0.00	0.000	1487.17	2.65 28 0.005 0.001
1700.0	1681.5	2.611	0.000	0.000	0.00	0.000	1488.23	2.49 36 0.004 0.000
1800.0	1780.0	2.505	0.000	0.000	0.00	0.000	1489.44	2.38 27 0.005 0.003
1900.0	1878.5	2.427	0.000	0.000	0.00	0.000	1490.79	2.29 31 0.005 0.004
2000.0	1976.9	2.360	0.000	0.000	0.00	0.000	1492.18	2.22 58 0.002 0.000
2020.0	1996.6	2.342	0.000	0.000	0.00	0.000	1492.46	2.20 50 0.003 0.000

SHIP : HMAS COOK - Plessey  
 STATION NUMBER : 16 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 21-AUG-1987 (DAY NUMBER 233)  
 START TIME : 1520 GMT - Z  
 CRUISE : CR12/87  
 POSITION : 19:56.70S 179:30.50W  
 CAST DEPTH : 2392 METRES  
 BOTTOM DEPTH : 2417 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
0.0	0.0	22.761	0.000	0.000	0.00	0.000	1529.66	22.76 8 0.000 0.004
10.0	9.9	22.759	0.000	0.000	0.00	0.000	1529.73	22.76 43 0.003 0.007
20.0	19.9	22.761	0.000	0.000	0.00	0.000	1529.91	22.76 49 0.000 0.004
30.0	29.8	22.763	0.000	0.000	0.00	0.000	1530.09	22.76 52 0.004 0.003
40.0	39.8	22.770	0.000	0.000	0.00	0.000	1530.28	22.76 52 0.003 0.004
50.0	49.7	22.771	0.000	0.000	0.00	0.000	1530.46	22.76 41 0.000 0.003
60.0	59.6	22.771	0.000	0.000	0.00	0.000	1530.63	22.76 42 0.000 0.004
70.0	69.6	22.772	0.000	0.000	0.00	0.000	1530.80	22.76 43 0.003 0.004
80.0	79.5	22.758	0.000	0.000	0.00	0.000	1530.90	22.74 38 0.009 0.011
90.0	89.4	22.735	0.000	0.000	0.00	0.000	1531.01	22.72 28 0.009 0.023
100.0	99.4	22.570	0.000	0.000	0.00	0.000	1530.71	22.55 42 0.069 0.074
120.0	119.2	22.306	0.000	0.000	0.00	0.000	1530.39	22.28 43 0.005 0.004
140.0	139.1	22.047	0.000	0.000	0.00	0.000	1530.05	22.02 53 0.038 0.042
160.0	159.0	21.409	0.000	0.000	0.00	0.000	1528.65	21.38 46 0.142 0.130
180.0	178.8	20.765	0.000	0.000	0.00	0.000	1527.31	20.73 63 0.073 0.079
200.0	198.7	20.091	0.000	0.000	0.00	0.000	1525.71	20.06 52 0.175 0.176
220.0	218.5	19.284	0.000	0.000	0.00	0.000	1523.80	19.24 58 0.113 0.111
240.0	238.4	18.621	0.000	0.000	0.00	0.000	1522.19	18.58 49 0.096 0.092
260.0	258.3	18.082	0.000	0.000	0.00	0.000	1520.96	18.04 35 0.063 0.066
280.0	278.1	17.728	0.000	0.000	0.00	0.000	1520.27	17.68 42 0.029 0.027
300.0	298.0	17.380	0.000	0.000	0.00	0.000	1519.53	17.33 37 0.073 0.062
320.0	317.8	16.970	0.000	0.000	0.00	0.000	1518.64	16.92 30 0.031 0.036
340.0	337.6	16.516	0.000	0.000	0.00	0.000	1517.56	16.46 25 0.059 0.054
360.0	357.5	16.054	0.000	0.000	0.00	0.000	1516.23	16.00 35 0.170 0.180
380.0	377.3	15.477	0.000	0.000	0.00	0.000	1514.86	15.42 31 0.043 0.024
400.0	397.2	14.877	0.000	0.000	0.00	0.000	1513.13	14.82 25 0.061 0.048
420.0	417.0	14.491	0.000	0.000	0.00	0.000	1512.28	14.43 28 0.033 0.027
440.0	436.8	13.820	0.000	0.000	0.00	0.000	1510.16	13.76 31 0.113 0.147
460.0	456.7	13.002	0.000	0.000	0.00	0.000	1507.79	12.94 34 0.072 0.091
480.0	476.5	12.167	0.000	0.000	0.00	0.000	1505.17	12.10 32 0.076 0.085
500.0	496.3	11.377	0.000	0.000	0.00	0.000	1502.71	11.31 33 0.039 0.045
550.0	545.9	9.439	0.000	0.000	0.00	0.000	1496.29	9.38 28 0.091 0.071
600.0	595.5	8.192	0.000	0.000	0.00	0.000	1492.43	8.13 25 0.084 0.081
700.0	694.6	6.555	0.000	0.000	0.00	0.000	1487.73	6.49 26 0.020 0.018
800.0	793.6	5.586	0.000	0.000	0.00	0.000	1485.45	5.52 24 0.038 0.040
900.0	892.6	4.523	0.000	0.000	0.00	0.000	1482.81	4.45 33 0.039 0.033
1000.0	991.5	3.932	0.000	0.000	0.00	0.000	1482.09	3.86 36 0.008 0.008
1100.0	1090.4	3.617	0.000	0.000	0.00	0.000	1482.51	3.53 27 0.008 0.003
1200.0	1189.2	3.427	0.000	0.000	0.00	0.000	1483.35	3.34 25 0.006 0.005
1300.0	1288.0	3.179	0.000	0.000	0.00	0.000	1483.99	3.08 33 0.004 0.003
1400.0	1386.8	2.877	0.000	0.000	0.00	0.000	1485.05	2.93 32 0.004 0.003
1500.0	1485.5	2.872	0.000	0.000	0.00	0.000	1486.02	2.76 39 0.005 0.003
1600.0	1584.2	2.735	0.000	0.000	0.00	0.000	1487.12	2.62 31 0.000 0.004
1700.0	1682.8	2.611	0.000	0.000	0.00	0.000	1488.27	2.49 29 0.004 0.004
1800.0	1781.3	2.498	0.000	0.000	0.00	0.000	1489.46	2.37 32 0.005 0.005
1900.0	1879.9	2.379	0.000	0.000	0.00	0.000	1490.61	2.24 35 0.003 0.003
2000.0	1978.3	2.290	0.000	0.000	0.00	0.000	1491.93	2.15 26 0.000 0.000
2100.0	2076.8	2.219	0.000	0.000	0.00	0.000	1493.29	2.07 32 0.004 0.004
2200.0	2175.1	2.129	0.000	0.000	0.00	0.000	1494.62	1.97 30 0.003 0.004
2300.0	2273.5	2.080	0.000	0.000	0.00	0.000	1496.10	1.92 26 0.004 0.004
2400.0	2371.8	2.044	0.000	0.000	0.00	0.000	1497.60	1.87 39 0.005 0.003
2420.0	2391.4	2.027	0.000	0.000	0.00	0.000	1497.91	1.85 86 0.009 0.006

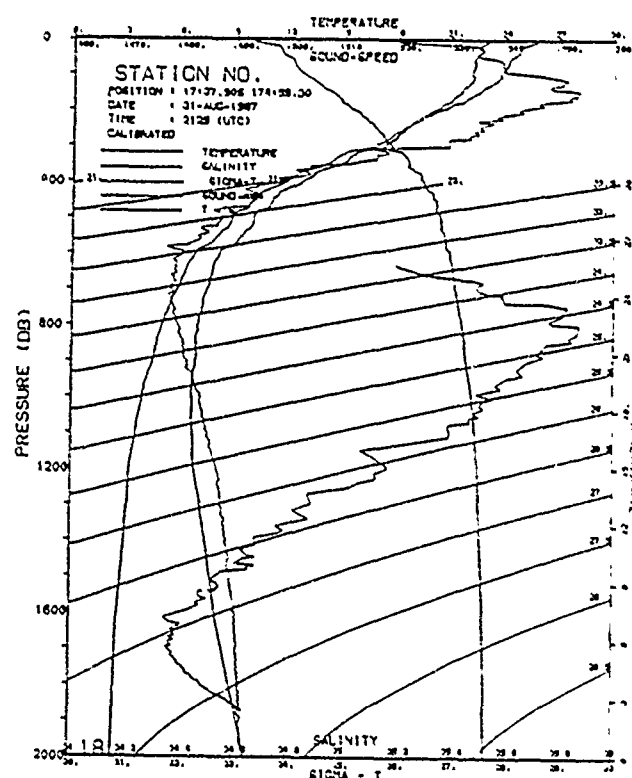
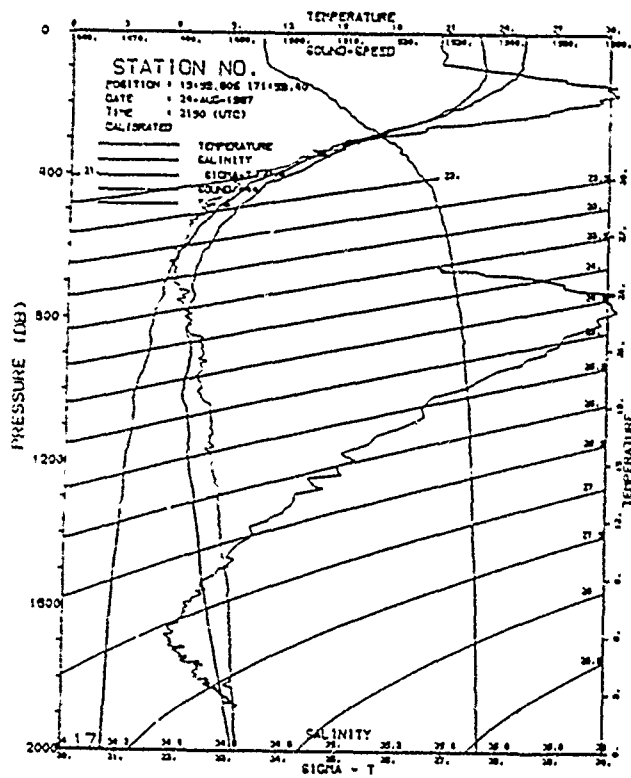


SHIP : HMAS COOK - Plessey  
 STATION NUMBER : 17 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 24-AUG-1987 (DAY NUMBER 236)  
 START TIME : 2150 GMT = Z  
 CRUISE : CR12/87  
 POSITION : 15:59.60S 171:59.40W  
 CAST DEPTH : 1967 METRES  
 BOTTOM DEPTH : 6433 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
10.0	9.9	25.234	0.000	0.000	0.00	0.000	1535.64	25.23 68 0.004 0.006
20.0	19.9	25.216	0.000	0.000	0.00	0.000	1535.79	25.21 59 0.006 0.005
30.0	29.8	25.208	0.000	0.000	0.00	0.000	1535.93	25.20 55 0.001 0.000
40.0	39.8	25.207	0.000	0.000	0.00	0.000	1536.11	25.20 55 0.003 0.004
50.0	49.7	25.167	0.000	0.000	0.00	0.000	1536.18	25.16 63 0.022 0.015
60.0	59.6	25.122	0.000	0.000	0.00	0.000	1536.24	25.11 63 0.012 0.013
70.0	69.7	25.084	0.000	0.000	0.00	0.000	1536.31	25.07 60 0.011 0.015
80.0	79.5	25.047	0.000	0.000	0.00	0.000	1536.38	25.03 74 0.008 0.011
90.0	89.5	25.048	0.000	0.000	0.00	0.000	1536.61	25.03 61 0.015 0.069
100.0	99.4	25.011	0.000	0.000	0.00	0.000	1536.72	24.99 52 0.094 0.114
120.0	119.3	24.702	0.000	0.000	0.00	0.000	1536.54	24.68 55 0.042 0.099
140.0	139.1	24.082	0.000	0.000	0.00	0.000	1535.50	24.05 49 0.096 0.059
160.0	159.0	23.429	0.000	0.000	0.00	0.000	1534.31	23.40 43 0.100 0.083
180.0	178.9	22.596	0.000	0.000	0.00	0.000	1532.70	22.66 34 0.127 0.174
200.0	198.7	22.040	0.000	0.000	0.00	0.000	1531.25	22.00 41 0.131 0.153
220.0	218.6	20.919	0.000	0.000	0.00	0.000	1528.48	20.88 51 0.121 0.139
240.0	238.4	20.005	0.000	0.000	0.00	0.000	1526.07	19.96 41 0.114 0.156
260.0	258.3	18.649	0.000	0.000	0.00	0.000	1522.13	18.60 37 0.254 0.310
280.0	278.2	17.133	0.000	0.000	0.00	0.000	1518.05	17.09 48 0.171 0.214
300.0	298.0	15.790	0.000	0.000	0.00	0.000	1513.92	15.74 42 0.239 0.308
320.0	317.9	14.481	0.000	0.000	0.00	0.000	1510.24	14.43 29 0.113 0.081
340.0	337.7	13.706	0.000	0.000	0.00	0.000	1507.98	13.66 34 0.073 0.043
360.0	357.6	12.901	0.000	0.000	0.00	0.000	1505.50	12.85 32 0.153 0.159
380.0	377.4	12.179	0.000	0.000	0.00	0.000	1503.35	12.13 35 0.123 0.153
400.0	397.3	11.183	0.000	0.000	0.00	0.000	1500.16	11.13 34 0.123 0.122
420.0	417.1	10.227	0.000	0.000	0.00	0.000	1496.91	10.18 24 0.142 0.151
440.0	436.9	9.638	0.000	0.000	0.00	0.000	1495.29	9.59 28 0.063 0.051
460.0	456.8	9.212	0.000	0.000	0.00	0.000	1494.03	9.16 29 0.045 0.045
480.0	476.6	8.661	0.000	0.000	0.00	0.000	1492.18	8.61 29 0.102 0.104
500.0	496.5	8.199	0.000	0.000	0.00	0.000	1490.80	8.15 37 0.054 0.035
550.0	546.0	7.183	0.000	0.000	0.00	0.000	1487.76	7.13 29 0.039 0.028
600.0	595.6	6.555	0.000	0.000	0.00	0.000	1486.09	6.50 32 0.028 0.027
700.0	694.7	5.438	0.000	0.000	0.00	0.000	1483.26	5.38 29 0.035 0.032
800.0	793.8	4.791	0.000	0.000	0.00	0.000	1482.33	4.73 30 0.038 0.037
900.0	892.8	4.562	0.000	0.000	0.00	0.000	1481.13	4.49 30 0.010 0.010
1000.0	991.7	3.817	0.000	0.000	0.00	0.000	1481.78	3.77 35 0.031 0.034
1100.0	1090.6	3.680	0.000	0.000	0.00	0.000	1482.79	3.60 36 0.005 0.006
1200.0	1189.5	3.136	0.000	0.000	0.00	0.000	1483.00	3.25 35 0.005 0.003
1300.0	1288.3	3.195	0.000	0.000	0.00	0.000	1484.07	3.10 28 0.015 0.011
1400.0	1387.1	3.016	0.000	0.000	0.00	0.000	1484.94	2.92 31 0.008 0.005
1500.0	1485.8	2.769	0.000	0.000	0.00	0.000	1485.57	2.66 29 0.011 0.009
1600.0	1584.5	2.634	0.000	0.000	0.00	0.000	1486.68	2.52 30 0.000 0.000
1700.0	1683.1	2.535	0.000	0.000	0.00	0.000	1487.97	2.41 29 0.004 0.005
1800.0	1781.7	2.452	0.000	0.000	0.00	0.000	1489.26	2.32 30 0.001 0.005
1900.0	1880.3	2.330	0.000	0.000	0.00	0.000	1490.44	2.20 33 0.000 0.000
1990.0	1968.9	2.151	0.000	0.000	0.00	0.000	1491.61	2.11 211 0.004 0.003

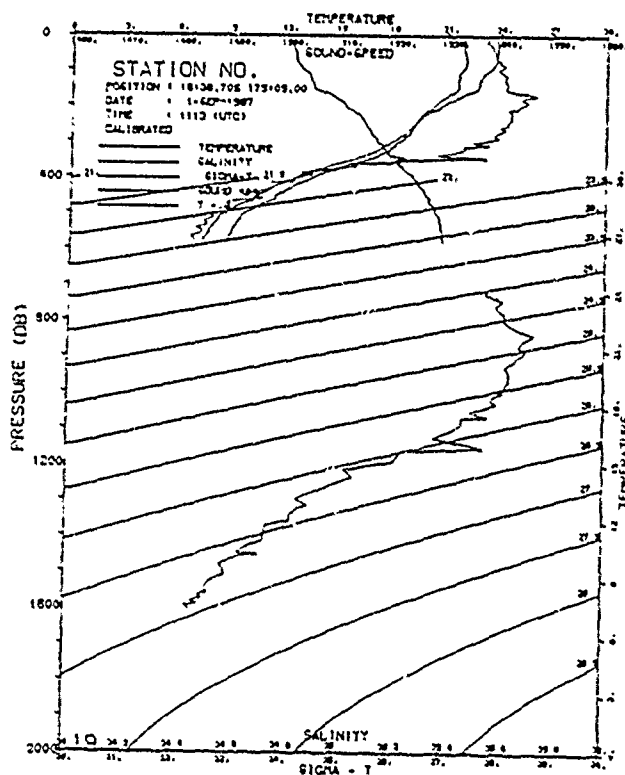
SHIP : HMAS COOK - Plessey  
 STATION NUMBER : 18 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 31-AUG-1987 (DAY NUMBER 243)  
 START TIME : 2125 GMT = Z  
 CRUISE : CR12/87  
 POSITION : 17:37.90S 174:59.30W  
 CAST DEPTH : 2035 METRES  
 BOTTOM DEPTH : 2370 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
0.0	0.0	25.635	0.000	0.000	0.00	0.000	1536.28	25.63 10 0.004 0.005
10.0	9.9	25.531	0.000	0.000	0.00	0.000	1536.05	25.53 49 0.109 0.101
20.0	19.9	24.841	0.000	0.000	0.00	0.000	1534.90	24.84 86 0.093 0.018
30.0	29.8	24.721	0.000	0.000	0.00	0.000	1534.89	24.71 52 0.018 0.013
40.0	39.8	24.589	0.000	0.000	0.00	0.000	1534.73	24.58 46 0.064 0.077
50.0	49.7	24.290	0.000	0.000	0.00	0.000	1534.15	24.28 57 0.116 0.099
60.0	59.6	24.102	0.000	0.000	0.00	0.000	1534.00	24.09 54 0.005 0.019
70.0	69.6	24.068	0.000	0.000	0.00	0.000	1534.06	24.05 55 0.017 0.020
80.0	79.5	23.914	0.000	0.000	0.00	0.000	1533.83	23.90 58 0.053 0.050
90.0	89.4	23.735	0.000	0.000	0.00	0.000	1533.57	23.72 63 0.057 0.059
100.0	99.4	23.655	0.000	0.000	0.00	0.000	1533.67	23.63 70 0.043 0.108
120.0	119.2	23.344	0.000	0.000	0.00	0.000	1533.29	23.32 65 0.129 0.145
140.0	139.1	22.620	0.000	0.000	0.00	0.000	1531.83	22.59 78 0.059 0.066
160.0	159.0	21.997	0.000	0.000	0.00	0.000	1530.51	21.97 75 0.072 0.096
180.0	178.8	21.296	0.000	0.000	0.00	0.000	1528.75	21.26 48 0.285 0.356
200.0	198.7	20.284	0.000	0.000	0.00	0.000	1526.26	20.25 45 0.213 0.237
220.0	218.6	19.312	0.000	0.000	0.00	0.000	1523.80	19.27 33 0.093 0.073
240.0	238.4	18.619	0.000	0.000	0.00	0.000	1522.09	18.58 42 0.064 0.092
260.0	258.3	17.950	0.000	0.000	0.00	0.000	1520.48	17.91 41 0.132 0.141
280.0	278.1	17.432	0.000	0.000	0.00	0.000	1519.19	17.38 37 0.051 0.112
300.0	298.0	16.714	0.000	0.000	0.00	0.000	1517.44	16.67 34 0.042 0.037
320.0	317.8	15.053	0.000	0.000	0.00	0.000	1512.24	15.00 24 0.076 0.106
340.0	337.7	14.402	0.000	0.000	0.00	0.000	1510.52	14.35 26 0.068 0.090
360.0	357.5	13.439	0.000	0.000	0.00	0.000	1507.10	13.39 26 0.249 0.251
380.0	377.4	12.387	0.000	0.000	0.00	0.000	1504.26	12.34 28 0.041 0.042
400.0	397.2	11.734	0.000	0.000	0.00	0.000	1502.19	11.68 29 0.076 0.077
420.0	417.1	10.849	0.000	0.000	0.00	0.000	1499.30	10.80 28 0.111 0.119
440.0	436.9	10.273	0.000	0.000	0.00	0.000	1497.61	10.22 29 0.064 0.073
460.0	456.7	9.868	0.000	0.000	0.00	0.000	1496.52	9.81 30 0.069 0.088
480.0	476.6	9.336	0.000	0.000	0.00	0.000	1494.62	9.28 32 0.235 0.237
500.0	496.4	8.833	0.000	0.000	0.00	0.000	1493.30	8.78 28 0.014 0.012
550.0	546.0	8.077	0.000	0.000	0.00	0.000	1491.19	8.02 27 0.066 0.075
600.0	595.6	6.821	0.000	0.000	0.00	0.000	1487.16	5.76 30 0.006 0.007
700.0	694.6	5.839	0.000	0.000	0.00	0.000	1484.88	5.78 33 0.043 0.040
800.0	793.7	5.000	0.000	0.000	0.00	0.000	1483.16	4.93 26 0.021 0.018
900.0	892.7	4.506	0.000	0.000	0.00	0.000	1482.05	4.43 33 0.014 0.007
1000.0	991.6	3.932	0.000	0.000	0.00	0.000	1482.17	3.86 34 0.007 0.005
1100.0	1090.5	3.559	0.000	0.000	0.00	0.000	1482.29	3.18 30 0.007 0.004
1200.0	1189.4	3.251	0.000	0.000	0.00	0.000	1482.67	3.15 30 0.021 0.020
1300.0	1288.2	3.142	0.000	0.000	0.00	0.000	1483.65	3.05 28 0.008 0.005
1400.0	1387.0	2.992	0.000	0.000	0.00	0.000	1484.91	2.89 25 0.005 0.003
1500.0	1485.7	2.815	0.000	0.000	0.00	0.000	1485.84	2.71 27 0.003 0.004
1600.0	1584.4	2.634	0.000	0.000	0.00	0.000	1486.66	2.52 25 0.005 0.003
1700.0	1683.0	2.553	0.000	0.000	0.00	0.000	1488.06	2.43 27 0.000 0.000
1800.0	1781.6	2.485	0.000	0.000	0.00	0.000	1489.16	2.36 29 0.006 0.003
1900.0	1880.1	2.442	0.000	0.000	0.00	0.000	1490.94	2.31 32 0.000 0.004
2000.0	1978.6	2.373	0.000	0.000	0.00	0.000	1492.36	2.23 32 0.004 0.003
2050.0	2037.7	2.339	0.000	0.000	0.00	0.000	1493.08	2.19 12 0.002 0.002



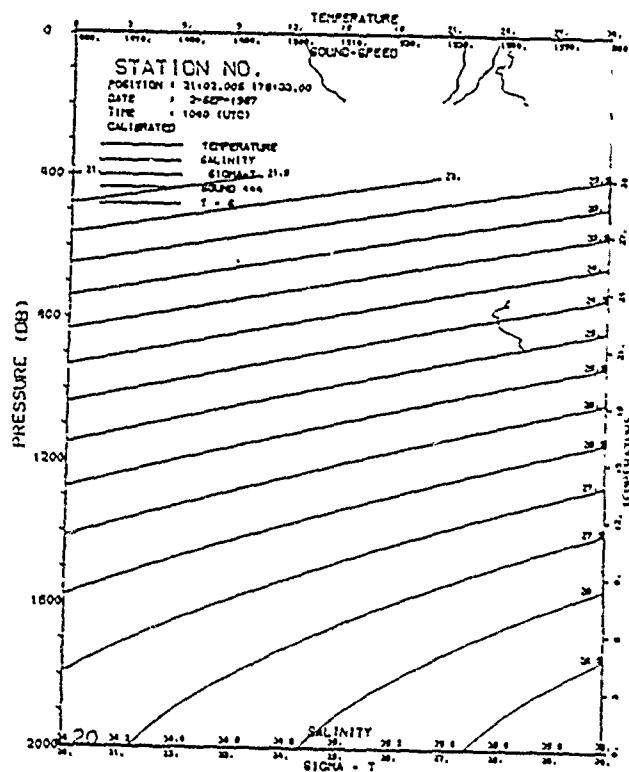
SHIP : HWAS COOK - Plessey  
 STATION NUMBER : 19 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 01-SEP-1987 (DAY NUMBER 244)  
 START TIME : 1113 GMT - Z  
 CRUISE : C012/87  
 POSITION : 18:38.70S 175:05.00E  
 CAST DEPTH : 576 METRES  
 BOTTOM DEPTH : 2582 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
10.0	9.9	24.046	0.000	0.000	0.00	0.000	1531.05	24.04 43 0.005 0.004
20.0	19.9	23.962	0.000	0.000	0.00	0.000	1532.97	23.96 58 0.045 0.038
30.0	29.8	23.866	0.000	0.000	0.00	0.000	1534.93	23.86 55 0.014 0.011
40.0	39.8	23.807	0.000	0.000	0.00	0.000	1532.95	23.80 60 0.024 0.020
50.0	49.7	23.759	0.000	0.000	0.00	0.000	1533.02	23.75 51 0.007 0.004
60.0	59.6	23.752	0.000	0.000	0.00	0.000	1533.15	23.74 39 0.000 0.002
70.0	69.6	23.733	0.000	0.000	0.00	0.000	1533.27	23.72 52 0.005 0.012
80.0	79.5	23.673	0.000	0.000	0.00	0.000	1533.29	23.66 56 0.069 0.071
90.0	89.4	23.512	0.000	0.000	0.00	0.000	1533.07	23.49 53 0.055 0.062
100.0	99.4	23.266	0.000	0.000	0.00	0.000	1532.55	23.25 49 0.098 0.110
120.0	119.2	22.910	0.000	0.000	0.00	0.000	1532.05	22.89 47 0.209 0.012
140.0	139.1	22.727	0.000	0.000	0.00	0.000	1531.90	22.70 52 0.016 0.015
160.0	159.0	22.455	0.000	0.000	0.00	0.000	1530.94	22.22 50 0.195 0.176
180.0	178.8	21.364	0.000	0.000	0.00	0.000	1527.48	20.64 52 0.095 0.110
200.0	198.7	20.582	0.000	0.000	0.00	0.000	1525.32	19.78 61 0.128 0.129
220.0	218.6	19.818	0.000	0.000	0.00	0.000	1524.34	19.28 70 0.044 0.052
240.0	238.4	19.328	0.000	0.000	0.00	0.000	1523.48	18.89 58 0.086 0.099
260.0	258.3	18.933	0.000	0.000	0.00	0.000	1522.60	18.48 35 0.091 0.114
280.0	278.1	18.532	0.000	0.000	0.00	0.000	1520.85	17.81 35 0.136 0.199
300.0	298.0	17.864	0.000	0.000	0.00	0.000	1519.33	17.20 39 0.157 0.148
320.0	317.8	17.249	0.000	0.000	0.00	0.000	1516.92	16.33 22 0.167 0.082
340.0	337.7	16.382	0.000	0.000	0.00	0.000	1512.32	14.85 36 0.261 0.361
360.0	357.5	14.904	0.000	0.000	0.00	0.000	1508.59	13.64 32 0.178 0.229
380.0	377.4	13.699	0.000	0.000	0.00	0.000	1505.09	12.56 28 0.124 0.146
400.0	397.2	12.618	0.000	0.000	0.00	0.000	1501.98	11.56 34 0.194 0.190
420.0	417.0	11.619	0.000	0.000	0.00	0.000	1499.72	10.81 35 0.095 0.119
440.0	436.9	10.861	0.000	0.000	0.00	0.000	1498.04	10.21 35 0.014 0.018
460.0	456.7	10.262	0.000	0.000	0.00	0.000	1494.91	9.32 36 0.115 0.106
480.0	476.6	9.370	0.000	0.000	0.00	0.000	1492.44	8.58 35 0.114 0.109
500.0	496.4	8.632	0.000	0.000	0.00	0.000	1490.04	7.70 37 0.022 0.014
520.0	516.2	7.752	0.000	0.000	0.00	0.000	1489.18	7.36 16 0.011 0.009
540.0	536.0	7.422	0.000	0.000	0.00	0.000		
560.0	555.8	7.422	0.000	0.000	0.00	0.000		



SHIP : HWAS COOK - Plessey  
 STATION NUMBER : 20 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 02-SEP-1987 (DAY NUMBER 245)  
 START TIME : 1040 GMT - Z  
 CRUISE : C012/87  
 POSITION : 21:02.00S 178:33.00E  
 CAST DEPTH : 189 METRES  
 BOTTOM DEPTH : 1690 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
0.0	0.0	23.600	0.000	0.000	0.00	0.000	1531.95	23.60 1 0.000 0.000
10.0	9.9	23.600	0.000	0.000	0.00	0.000	1532.00	23.60 78 0.000 0.003
20.0	19.9	23.599	0.000	0.000	0.00	0.000	1532.17	23.60 71 0.001 0.006
30.0	29.8	23.555	0.000	0.000	0.00	0.000	1532.19	23.55 68 0.037 0.037
40.0	39.7	23.482	0.000	0.000	0.00	0.000	1532.19	23.47 78 0.024 0.029
50.0	49.7	23.358	0.000	0.000	0.00	0.000	1532.02	23.35 80 0.034 0.032
60.0	59.6	23.319	0.000	0.000	0.00	0.000	1532.10	23.31 84 0.004 0.005
70.0	69.6	23.311	0.000	0.000	0.00	0.000	1532.26	23.30 73 0.005 0.005
80.0	79.5	23.292	0.000	0.000	0.00	0.000	1532.36	23.28 76 0.029 0.056
90.0	89.4	23.083	0.000	0.000	0.00	0.000	1531.94	23.06 69 0.054 0.066
100.0	99.4	22.873	0.000	0.000	0.00	0.000	1531.54	22.85 63 0.067 0.060
120.0	119.2	22.506	0.000	0.000	0.00	0.000	1530.95	22.48 73 0.041 0.036
140.0	139.1	22.419	0.000	0.000	0.00	0.000	1531.06	22.39 66 0.027 0.029
160.0	159.0	21.936	0.000	0.000	0.00	0.000	1530.14	21.90 69 0.123 0.099
180.0	178.8	21.393	0.000	0.000	0.00	0.000	1529.07	21.36 53 0.116 0.114
190.0	188.7	21.121	0.000	0.000	0.00	0.000	1528.47	21.08 67 0.015 0.018



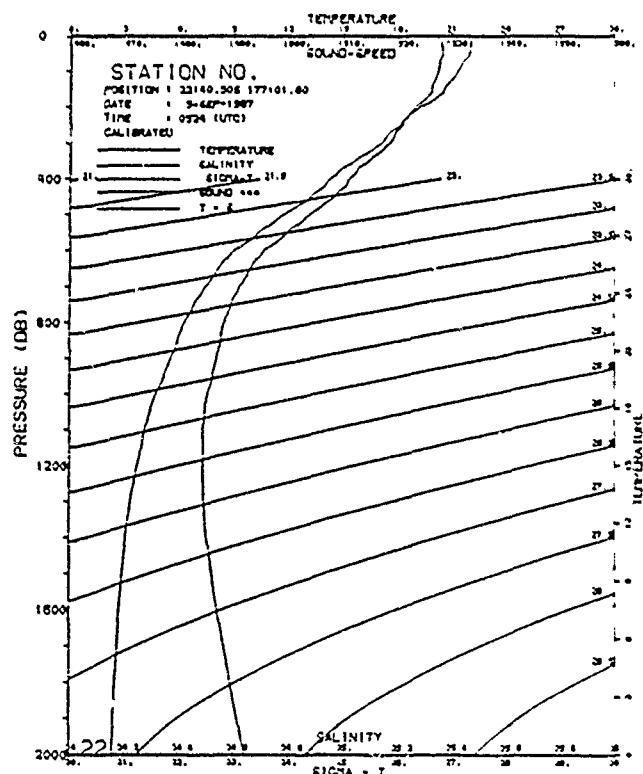
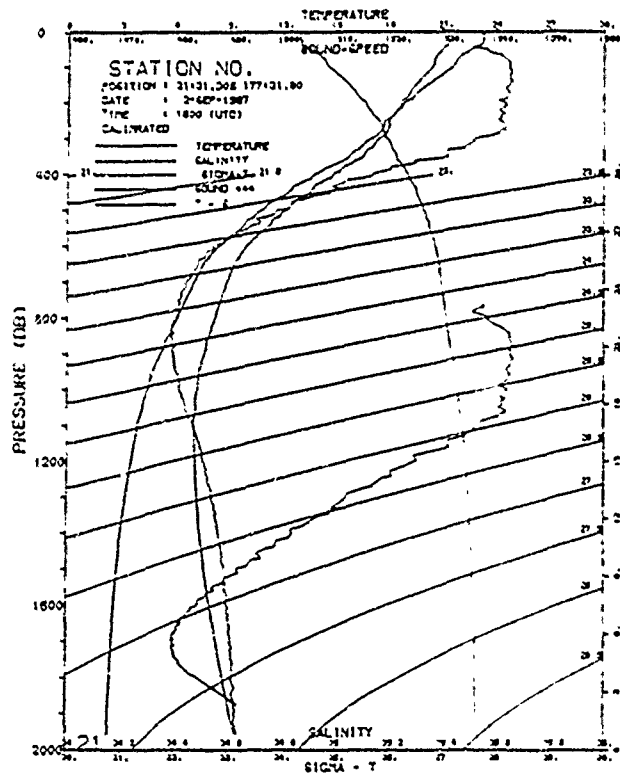


SHIP : HMS COOK - Plessey  
 STATION NUMBER : 21 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 02-SEP-1987 (DAY NUMBER 245)  
 START TIME : 1600 GMT - 2  
 CRUISE : CK12/87  
 POSITION : 21:31.10S 177:11.80E  
 CAST DEPTH : 1941 METRES  
 BOTTOM DEPTH : 3662 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
10.0	9.9	23.155	0.000	0.000	0.00	0.000	1530.77	23.15
20.0	19.9	23.127	0.000	0.000	0.00	0.000	1530.87	23.12
30.0	29.8	23.090	0.000	0.000	0.00	0.000	1530.92	23.08
40.0	39.7	23.000	0.000	0.000	0.00	0.000	1530.83	22.99
50.0	49.7	22.576	0.000	0.000	0.00	0.000	1529.93	22.57
60.0	59.6	22.105	0.000	0.000	0.00	0.000	1529.38	22.29
70.0	69.6	21.969	0.000	0.000	0.00	0.000	1528.73	21.96
80.0	79.5	21.761	0.000	0.000	0.00	0.000	1528.39	21.75
90.0	89.4	21.676	0.000	0.000	0.00	0.000	1528.34	21.66
100.0	99.4	21.511	0.000	0.000	0.00	0.000	1528.08	21.50
120.0	119.2	20.990	0.000	0.000	0.00	0.000	1526.95	20.97
140.0	139.1	20.396	0.000	0.000	0.00	0.000	1525.67	20.37
160.0	158.9	19.837	0.000	0.000	0.00	0.000	1524.43	19.81
180.0	178.8	19.442	0.000	0.000	0.00	0.000	1523.67	19.41
200.0	198.7	18.814	0.000	0.000	0.00	0.000	1522.21	18.78
220.0	218.5	18.500	0.000	0.000	0.00	0.000	1521.61	18.46
240.0	238.4	18.061	0.000	0.000	0.00	0.000	1520.65	18.02
260.0	258.2	17.685	0.000	0.000	0.00	0.000	1519.94	17.64
280.0	278.1	17.474	0.000	0.000	0.00	0.000	1519.61	17.43
300.0	297.9	16.984	0.000	0.000	0.00	0.000	1518.30	16.93
320.0	317.8	16.464	0.000	0.000	0.00	0.000	1517.05	16.41
340.0	337.6	15.904	0.000	0.000	0.00	0.000	1515.58	15.85
360.0	357.5	15.464	0.000	0.000	0.00	0.000	1514.37	15.41
380.0	377.3	14.533	0.000	0.000	0.00	0.000	1511.63	14.48
400.0	397.1	13.828	0.000	0.000	0.00	0.000	1509.65	13.77
420.0	417.0	13.180	0.000	0.000	0.00	0.000	1507.70	13.12
440.0	436.8	12.521	0.000	0.000	0.00	0.000	1505.90	12.46
460.0	456.6	12.047	0.000	0.000	0.00	0.000	1504.45	11.99
480.0	476.5	11.302	0.000	0.000	0.00	0.000	1502.10	11.24
500.0	496.3	10.852	0.000	0.000	0.00	0.000	1500.78	10.79
520.0	516.1	9.663	0.000	0.000	0.00	0.000	1497.27	9.60
540.0	535.9	8.458	0.000	0.000	0.00	0.000	1493.51	8.39
560.0	555.4	7.061	0.000	0.000	0.00	0.000	1489.77	6.99
580.0	575.1	6.145	0.000	0.000	0.00	0.000	1487.77	6.07
600.0	594.5	5.185	0.000	0.000	0.00	0.000	1485.56	5.11
620.0	613.9	4.473	0.000	0.000	0.00	0.000	1484.32	4.39
640.0	633.3	3.871	0.000	0.000	0.00	0.000	1483.52	3.79
660.0	652.7	3.536	0.000	0.000	0.00	0.000	1483.83	3.45
680.0	672.1	3.235	0.000	0.000	0.00	0.000	1484.23	3.14
700.0	691.5	2.989	0.000	0.000	0.00	0.000	1484.85	2.89
720.0	710.9	2.797	0.000	0.000	0.00	0.000	1485.74	2.69
740.0	730.3	2.646	0.000	0.000	0.00	0.000	1486.78	2.53
760.0	749.7	2.514	0.000	0.000	0.00	0.000	1487.90	2.40
780.0	769.1	2.447	0.000	0.000	0.00	0.000	1489.24	2.32
800.0	788.5	2.350	0.000	0.000	0.00	0.000	1490.51	2.22
820.0	807.9	2.310	0.000	0.000	0.00	0.000	1491.28	2.17

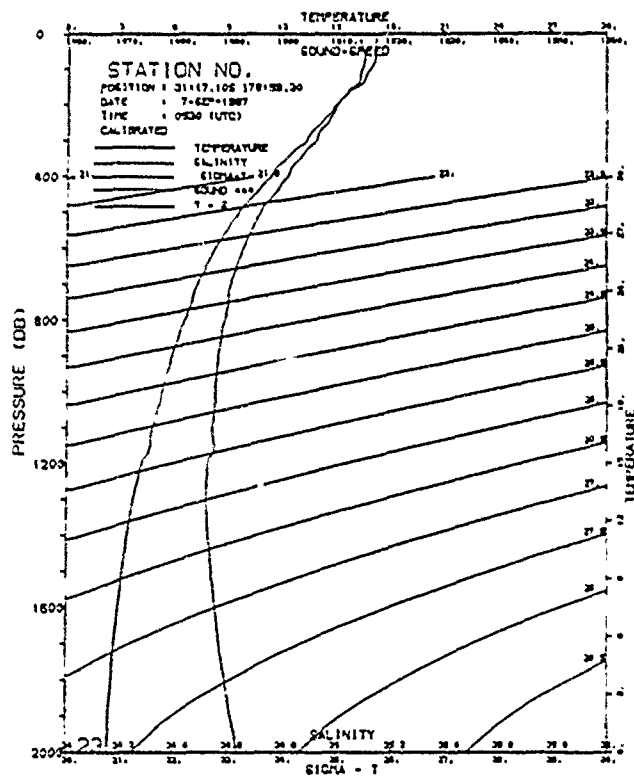
SHIP : HMS COOK - Plessey  
 STATION NUMBER : 22 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 05-SEP-1987 (DAY NUMBER 248)  
 START TIME : 0524 GMT - 2  
 CRUISE : CK12/87  
 POSITION : 22:40.50S 177:01.60E  
 CAST DEPTH : 1998 METRES  
 BOTTOM DEPTH : 4257 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
10.0	9.9	22.071	0.000	0.000	0.00	0.000	1527.95	22.07
20.0	19.9	22.073	0.000	0.000	0.00	0.000	1528.13	22.07
30.0	29.8	22.067	0.000	0.000	0.00	0.000	1528.28	22.06
40.0	39.7	22.043	0.000	0.000	0.00	0.000	1528.40	22.04
50.0	49.7	21.999	0.000	0.000	0.00	0.000	1528.42	21.99
60.0	59.6	21.923	0.000	0.000	0.00	0.000	1528.36	21.91
70.0	69.5	21.679	0.000	0.000	0.00	0.000	1527.97	21.67
80.0	79.5	21.562	0.000	0.000	0.00	0.000	1527.80	21.55
90.0	89.4	21.482	0.000	0.000	0.00	0.000	1527.83	21.46
100.0	99.3	21.330	0.000	0.000	0.00	0.000	1527.58	21.31
120.0	119.2	21.075	0.000	0.000	0.00	0.000	1527.25	21.05
140.0	139.1	20.583	0.000	0.000	0.00	0.000	1525.57	20.56
160.0	158.9	20.518	0.000	0.000	0.00	0.000	1525.18	20.49
180.0	178.8	20.006	0.000	0.000	0.00	0.000	1522.48	19.22
200.0	198.6	19.252	0.000	0.000	0.00	0.000	1522.29	18.66
220.0	218.5	18.700	0.000	0.000	0.00	0.000	1522.23	18.19
240.0	238.4	18.234	0.000	0.000	0.00	0.000	1521.23	17.63
260.0	258.2	17.867	0.000	0.000	0.00	0.000	1520.43	17.07
280.0	278.1	17.427	0.000	0.000	0.00	0.000	1519.48	16.51
300.0	297.9	17.133	0.000	0.000	0.00	0.000	1518.26	16.08
320.0	317.7	16.607	0.000	0.000	0.00	0.000	1517.52	15.55
340.0	337.6	15.909	0.000	0.000	0.00	0.000	1515.58	15.01
360.0	357.4	15.400	0.000	0.000	0.00	0.000	1514.24	14.46
380.0	377.3	14.764	0.000	0.000	0.00	0.000	1512.62	13.91
400.0	397.1	14.308	0.000	0.000	0.00	0.000	1511.41	13.25
420.0	416.9	14.013	0.000	0.000	0.00	0.000	1510.75	13.39
440.0	436.8	13.449	0.000	0.000	0.00	0.000	1509.11	12.97
460.0	456.6	13.031	0.000	0.000	0.00	0.000	1507.95	12.57
480.0	476.4	12.400	0.000	0.000	0.00	0.000	1506.13	12.14
500.0	496.3	11.781	0.000	0.000	0.00	0.000	1504.24	11.72
520.0	516.1	10.400	0.000	0.000	0.00	0.000	1500.05	10.33
540.0	535.9	9.019	0.000	0.000	0.00	0.000	1495.66	8.95
560.0	555.4	7.440	0.000	0.000	0.00	0.000	1491.27	7.17
580.0	575.1	6.322	0.000	0.000	0.00	0.000	1490.50	6.25
600.0	594.5	5.530	0.000	0.000	0.00	0.000	1490.98	5.45
620.0	613.9	4.745	0.000	0.000	0.00	0.000	1490.42	4.66
640.0	633.3	4.127	0.000	0.000	0.00	0.000	1489.59	4.04
660.0	652.7	3.706	0.000	0.000	0.00	0.000	1488.73	3.61
680.0	672.1	3.117	0.000	0.000	0.00	0.000	1487.73	3.25
700.0	691.5	3.084	0.000	0.000	0.00	0.000	1486.51	2.98
720.0	710.9	2.901	0.000	0.000	0.00	0.000	1485.31	2.78
740.0	730.3	2.740	0.000	0.000	0.00	0.000	1484.21	2.59
760.0	749.7	2.626	0.000	0.000	0.00	0.000	1483.18	2.51
780.0	769.1	2.517	0.000	0.000	0.00	0.000	1482.18	2.39
800.0	788.5	2.429	0.000	0.000	0.00	0.000	1480.88	2.30
820.0	807.9	2.341	0.000	0.000	0.00	0.000	1479.28	2.20
840.0	827.3	2.320	0.000	0.000	0.00	0.000	1478.43	2.18



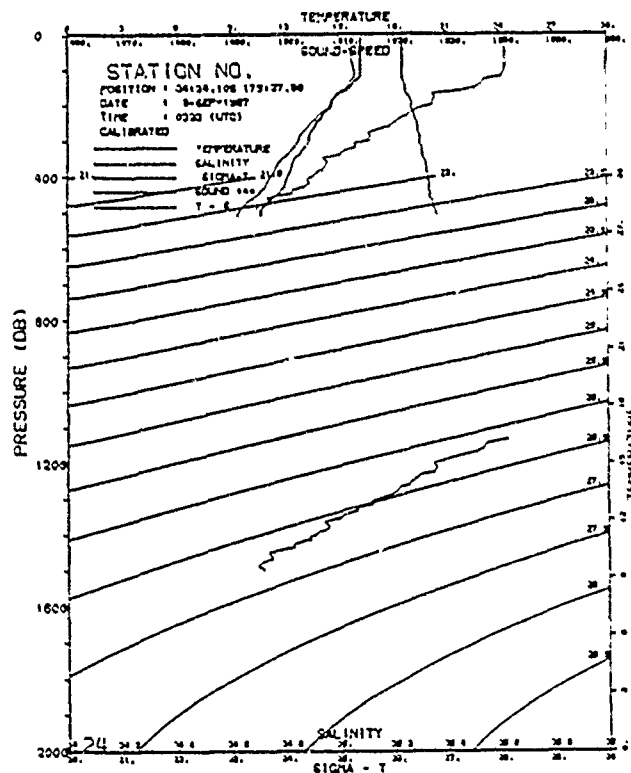
SHIP : HMAS COOK - Plessey  
 STATION NUMBER : 23 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 07-SEP-1987 (DAY NUMBER 250)  
 START TIME : 0530 GMT = 2  
 CRUISE : 002/87  
 POSITION : 31:17.105 176:59.20E  
 CAST DEPTH : 1993 METRES  
 BOTTOM DEPTH : 4054 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
10.0	9.9	17.188	0.000	0.000	0.00	0.000	1514.54	17.19 12 0.001 0.004
20.0	19.9	17.174	0.000	0.000	0.00	0.000	1514.57	17.17 79 0.014 0.003
30.0	29.8	17.137	0.000	0.000	0.00	0.000	1514.64	17.13 88 0.001 0.003
40.0	39.7	17.131	0.000	0.000	0.00	0.000	1514.79	17.12 59 0.005 0.004
50.0	49.6	17.127	0.000	0.000	0.00	0.000	1514.93	17.12 40 0.000 0.005
60.0	59.6	17.118	0.000	0.000	0.00	0.000	1515.08	17.11 90 0.004 0.005
70.0	69.5	17.110	0.000	0.000	0.00	0.000	1515.21	17.10 80 0.005 0.005
80.0	79.4	17.094	0.000	0.000	0.00	0.000	1515.12	17.02 54 0.026 0.003
90.0	89.4	16.972	0.000	0.000	0.00	0.000	1515.07	16.96 45 0.035 0.003
100.0	99.3	15.839	0.000	0.000	0.00	0.000	1514.80	16.82 50 0.049 0.002
120.0	119.1	16.603	0.000	0.000	0.00	0.000	1514.42	16.58 51 0.030 0.002
140.0	139.0	16.445	0.000	0.000	0.00	0.000	1514.18	16.42 39 0.052 0.005
160.0	158.8	15.750	0.000	0.000	0.00	0.000	1512.27	15.72 48 0.026 0.005
180.0	178.7	15.396	0.000	0.000	0.00	0.000	1511.40	15.37 44 0.080 0.005
200.0	198.5	14.992	0.000	0.000	0.00	0.000	1510.42	14.96 51 0.080 0.005
220.0	218.4	14.711	0.000	0.000	0.00	0.000	1509.84	14.68 47 0.037 0.002
240.0	238.2	14.317	0.000	0.000	0.00	0.000	1508.86	14.28 47 0.034 0.004
260.0	258.0	14.017	0.000	0.000	0.00	0.000	1508.10	13.98 40 0.079 0.000
280.0	277.9	13.563	0.000	0.000	0.00	0.000	1506.90	13.52 50 0.062 0.006
300.0	297.7	13.351	0.000	0.000	0.00	0.000	1506.58	13.31 39 0.015 0.002
320.0	317.5	12.855	0.000	0.000	0.00	0.000	1505.06	12.81 32 0.068 0.002
340.0	337.4	12.439	0.000	0.000	0.00	0.000	1503.98	12.39 37 0.046 0.005
360.0	357.2	12.067	0.000	0.000	0.00	0.000	1502.95	12.02 37 0.061 0.004
380.0	377.0	11.610	0.000	0.000	0.00	0.000	1501.68	11.56 38 0.058 0.004
400.0	396.9	11.420	0.000	0.000	0.00	0.000	1501.32	11.37 29 0.032 0.005
420.0	416.7	10.994	0.000	0.000	0.00	0.000	1500.10	10.94 27 0.014 0.004
440.0	436.5	10.716	0.000	0.000	0.00	0.000	1499.39	10.66 33 0.054 0.004
460.0	456.3	10.312	0.000	0.000	0.00	0.000	1498.25	10.26 28 0.035 0.001
480.0	476.1	9.897	0.000	0.000	0.00	0.000	1496.94	9.84 33 0.056 0.000
500.0	495.9	9.603	0.000	0.000	0.00	0.000	1496.28	9.55 35 0.036 0.002
520.0	515.5	8.948	0.000	0.000	0.00	0.000	1494.60	8.89 30 0.034 0.005
540.0	535.0	8.321	0.000	0.000	0.00	0.000	1493.04	8.26 32 0.031 0.000
560.0	554.0	7.307	0.000	0.000	0.00	0.000	1490.71	7.24 31 0.017 0.000
580.0	572.9	6.577	0.000	0.000	0.00	0.000	1489.43	6.50 32 0.027 0.002
600.0	591.8	5.895	0.000	0.000	0.00	0.000	1488.32	5.81 31 0.016 0.003
1000.0	990.7	5.340	0.000	0.000	0.00	0.000	1487.74	5.25 31 0.021 0.004
1100.0	1089.5	4.803	0.000	0.000	0.00	0.000	1487.22	4.71 31 0.019 0.000
1200.0	1188.3	4.209	0.000	0.000	0.00	0.000	1486.43	4.11 37 0.018 0.004
1300.0	1287.0	3.123	0.000	0.000	0.00	0.000	1486.13	3.62 32 0.014 0.006
1400.0	1385.7	3.103	0.000	0.000	0.00	0.000	1486.49	3.10 27 0.009 0.000
1500.0	1484.3	3.137	0.000	0.000	0.00	0.000	1487.01	3.03 27 0.009 0.000
1600.0	1582.9	2.876	0.000	0.000	0.00	0.000	1487.74	2.78 32 0.008 0.003
1700.0	1681.4	2.491	0.000	0.000	0.00	0.000	1488.53	2.57 27 0.005 0.004
1800.0	1779.7	2.554	0.000	0.000	0.00	0.000	1489.64	2.43 30 0.002 0.000
1900.0	1878.1	2.411	0.000	0.000	0.00	0.000	1490.68	2.28 35 0.003 0.000
2000.0	1976.7	2.349	0.000	0.000	0.00	0.000	1491.95	2.17 31 0.001 0.001
2010.0	1986.6	2.302	0.000	0.000	0.00	0.000	1492.00	2.16 14 0.001 0.001



SHIP : HMAS COOK - Plessey  
 STATION NUMBER : 24 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 08-SEP-1987 (DAY NUMBER 251)  
 START TIME : 0323 GMT = 2  
 CRUISE : 002/87  
 POSITION : 34:24.105 175:27.80E  
 CAST DEPTH : 514 METRES  
 BOTTOM DEPTH : 1059 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
10.0	9.9	16.217	0.000	0.000	0.00	0.000	1511.50	16.21 6 0.000 0.000
20.0	19.9	16.217	0.000	0.000	0.00	0.000	1511.62	16.21 33 0.000 0.004
30.0	29.8	16.216	0.000	0.000	0.00	0.000	1511.77	16.21 48 0.002 0.004
40.0	39.7	16.216	0.000	0.000	0.00	0.000	1511.95	16.21 57 0.002 0.003
50.0	49.6	16.218	0.000	0.000	0.00	0.000	1512.11	16.21 52 0.003 0.004
60.0	59.6	16.217	0.000	0.000	0.00	0.000	1512.29	16.21 56 0.000 0.004
70.0	69.5	16.217	0.000	0.000	0.00	0.000	1512.43	16.21 44 0.000 0.003
80.0	79.4	16.217	0.000	0.000	0.00	0.000	1512.60	16.20 50 0.000 0.004
90.0	89.3	16.217	0.000	0.000	0.00	0.000	1512.75	16.20 53 0.002 0.002
100.0	99.3	16.217	0.000	0.000	0.00	0.000	1512.92	16.20 47 0.000 0.001
120.0	119.1	16.193	0.000	0.000	0.00	0.000	1513.11	16.17 56 0.013 0.024
140.0	139.0	15.759	0.000	0.000	0.00	0.000	1512.04	15.74 50 0.031 0.047
160.0	158.8	15.417	0.000	0.000	0.00	0.000	1511.15	15.39 49 0.109 0.121
180.0	178.6	14.741	0.000	0.000	0.00	0.000	1509.27	14.71 48 0.059 0.080
200.0	198.5	14.502	0.000	0.000	0.00	0.000	1508.89	14.47 46 0.010 0.009
220.0	218.3	14.094	0.000	0.000	0.00	0.000	1507.76	14.06 50 0.056 0.055
240.0	238.1	13.748	0.000	0.000	0.00	0.000	1506.88	13.71 51 0.099 0.137
260.0	258.0	13.352	0.000	0.000	0.00	0.000	1505.92	13.32 46 0.038 0.043
280.0	277.8	12.980	0.000	0.000	0.00	0.000	1504.94	12.94 49 0.088 0.095
300.0	297.6	12.808	0.000	0.000	0.00	0.000	1504.71	12.77 27 0.009 0.007
320.0	317.5	12.473	0.000	0.000	0.00	0.000	1503.85	12.43 26 0.021 0.026
340.0	337.3	12.143	0.000	0.000	0.00	0.000	1502.97	12.10 29 0.045 0.043
360.0	357.1	11.681	0.000	0.000	0.00	0.000	1501.69	11.63 32 0.019 0.031
380.0	376.9	11.488	0.000	0.000	0.00	0.000	1501.34	11.44 31 0.034 0.030
400.0	396.7	11.224	0.000	0.000	0.00	0.000	1500.70	11.17 30 0.036 0.024
420.0	416.6	10.999	0.000	0.000	0.00	0.000	1500.22	10.95 28 0.007 0.007
440.0	436.4	10.728	0.000	0.000	0.00	0.000	1499.17	10.67 25 0.075 0.256
460.0	456.2	10.306	0.000	0.000	0.00	0.000	1499.11	10.25 27 0.138 0.148
480.0	476.0	9.807	0.000	0.000	0.00	0.000	1496.68	9.75 34 0.263 0.751
500.0	495.8	9.455	0.000	0.000	0.00	0.000	1495.83	9.40 38 0.045 0.243
510.0	505.7	9.382	0.000	0.000	0.00	0.000	1495.66	9.32 128 0.004 0.321

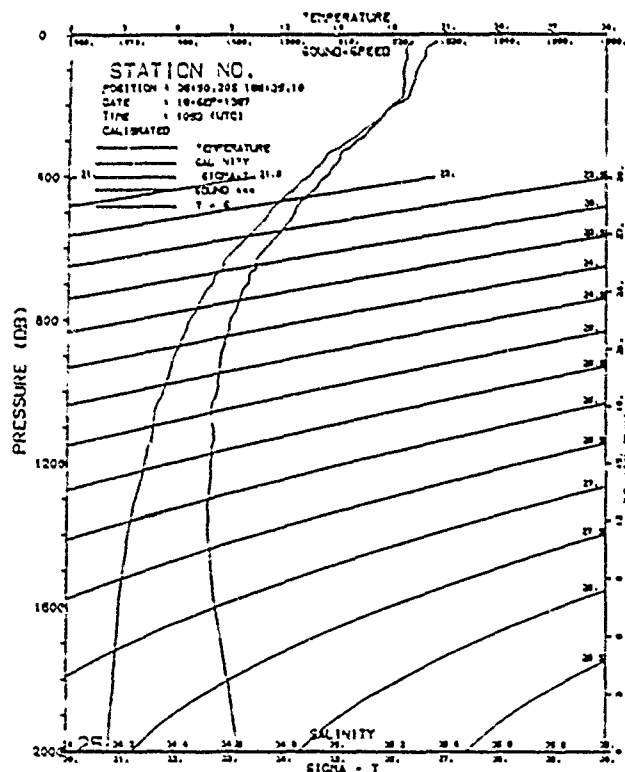


SHIP : IPAS COOK - Plessey  
 STATION NUMBER : 25 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 16-SEP-1987 (DAY NUMBER 259)  
 START TIME : 1051 GMT = 2  
 CRUISE : CK12/87  
 POSITION : 26.50, 105.166:35.10E  
 CAST DEPTH : 1994 METRES  
 BOTTOM DEPTH : 3583 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
20.0	19.9	20.479	0.000	0.000	0.00	0.000	1523.95	20.48
30.0	29.8	20.198	0.000	0.000	0.00	0.000	1523.32	20.19
40.0	39.7	19.904	0.000	0.000	0.00	0.000	1522.71	19.90
50.0	49.7	19.849	0.000	0.000	0.00	0.000	1522.72	19.84
60.0	59.6	19.838	0.000	0.000	0.00	0.000	1522.86	19.83
70.0	69.5	19.758	0.000	0.000	0.00	0.000	1522.77	19.75
80.0	79.5	19.598	0.000	0.000	0.00	0.000	1522.52	19.58
90.0	89.4	19.487	0.000	0.000	0.00	0.000	1522.36	19.47
100.0	99.3	19.382	0.000	0.000	0.00	0.000	1522.20	19.36
120.0	119.2	19.253	0.000	0.000	0.00	0.000	1522.25	19.24
140.0	139.0	19.181	0.000	0.000	0.30	0.000	1522.30	19.14
160.0	158.9	18.993	0.000	0.000	0.00	0.000	1522.13	18.96
180.0	178.7	18.856	0.000	0.000	0.00	0.000	1522.07	18.82
200.0	198.6	18.153	0.000	0.000	0.00	0.000	1520.17	18.12
220.0	218.4	17.645	0.000	0.000	0.00	0.000	1519.02	17.61
240.0	238.3	17.287	0.000	0.000	0.00	0.000	1518.18	17.25
260.0	258.1	16.688	0.000	0.000	0.00	0.000	1516.73	16.65
280.0	278.0	16.199	0.000	0.000	0.00	0.000	1515.52	16.15
300.0	297.8	15.598	0.000	0.000	0.00	0.000	1513.85	15.55
320.0	317.7	15.083	0.000	0.000	0.00	0.000	1512.45	15.03
340.0	337.5	14.378	0.000	0.000	0.00	0.000	1510.55	14.33
360.0	357.3	14.156	0.000	0.000	0.00	0.000	1510.16	14.10
380.0	377.2	13.712	0.000	0.000	0.00	0.000	1509.00	13.66
400.0	397.0	13.426	0.000	0.000	0.00	0.000	1508.25	13.37
420.0	416.8	12.857	0.000	0.000	0.00	0.000	1506.70	12.80
440.0	436.5	12.516	0.000	0.000	0.00	0.000	1505.84	12.46
460.0	456.3	11.999	0.000	0.000	0.00	0.000	1504.37	11.94
480.0	476.1	11.523	0.000	0.000	0.00	0.000	1502.91	11.46
500.0	495.9	11.205	0.000	0.000	0.00	0.000	1502.20	11.14
520.0	515.7	10.389	0.000	0.000	0.00	0.000	1499.97	10.32
540.0	535.2	9.355	0.000	0.000	0.00	0.000	1496.92	9.29
560.0	554.8	8.067	0.000	0.000	0.00	0.000	1493.66	7.99
580.0	574.2	6.830	0.000	0.000	0.00	0.000	1490.36	6.76
600.0	593.2	5.965	0.000	0.000	0.00	0.000	1488.65	5.88
620.0	612.1	5.370	0.000	0.000	0.00	0.000	1487.95	5.28
640.0	631.9	4.803	0.000	0.000	0.00	0.000	1487.28	4.71
660.0	651.7	4.317	0.000	0.000	0.00	0.000	1486.96	4.22
680.0	671.4	3.810	0.000	0.000	0.00	0.000	1486.53	3.72
700.0	691.2	3.402	0.000	0.000	0.00	0.000	1486.51	3.30
720.0	710.8	3.119	0.000	0.000	0.00	0.000	1487.00	3.01
740.0	730.4	2.921	0.000	0.000	0.00	0.000	1487.15	2.79
760.0	750.0	2.782	0.000	0.000	0.00	0.000	1488.40	2.66
780.0	769.5	2.655	0.000	0.000	0.00	0.000	1490.05	2.53
800.0	789.0	2.492	0.000	0.000	0.00	0.000	1491.03	2.36
820.0	808.4	2.359	0.000	0.000	0.00	0.000	1492.18	2.23
840.0	827.7	2.165	0.000	0.000	0.00	0.000	1492.35	2.12

SHIP : IPAS COOK - Plessey  
 STATION NUMBER : 26 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 16-SEP-1987 (DAY NUMBER 259)  
 START TIME : 2113 GMT = 2  
 CRUISE : CK12/87  
 POSITION : 27:22.00S 165:18.00E  
 CAST DEPTH : 3272 METRES  
 BOTTOM DEPTH : 3293 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
0.0	0.0	19.327	0.000	0.000	0.00	0.000	1520.60	19.33
10.0	9.9	19.265	0.000	0.000	0.00	0.000	1520.51	19.26
20.0	19.9	19.213	0.000	0.000	0.00	0.000	1520.54	19.21
30.0	29.8	19.175	0.000	0.000	0.00	0.000	1520.63	19.17
40.0	39.7	19.158	0.000	0.000	0.00	0.000	1520.74	19.15
50.0	49.7	19.108	0.000	0.000	0.00	0.000	1520.71	19.10
60.0	59.6	18.974	0.000	0.000	0.00	0.000	1520.49	18.96
70.0	69.5	18.900	0.000	0.000	0.00	0.000	1520.50	18.89
80.0	79.5	18.837	0.000	0.000	0.00	0.000	1520.44	18.82
90.0	89.4	18.723	0.000	0.000	0.00	0.000	1520.27	18.71
100.0	99.3	18.600	0.000	0.000	0.00	0.000	1520.05	18.58
120.0	119.2	18.459	0.000	0.000	0.00	0.000	1520.00	18.44
140.0	139.0	18.187	0.000	0.000	0.00	0.000	1519.47	18.16
160.0	158.9	17.701	0.000	0.000	0.00	0.000	1518.34	17.67
180.0	178.7	17.463	0.000	0.000	0.00	0.000	1517.91	17.43
200.0	198.6	17.012	0.000	0.000	0.00	0.000	1516.86	16.98
220.0	218.4	16.745	0.000	0.000	0.00	0.000	1516.37	16.71
240.0	238.3	16.362	0.000	0.000	0.00	0.000	1515.53	16.32
260.0	258.1	15.890	0.000	0.000	0.00	0.000	1514.34	15.85
280.0	278.0	15.446	0.000	0.000	0.00	0.000	1513.17	15.40
300.0	297.8	14.912	0.000	0.000	0.00	0.000	1511.77	14.87
320.0	317.6	14.464	0.000	0.000	0.00	0.000	1510.62	14.42
340.0	337.5	13.892	0.000	0.000	0.00	0.000	1509.04	13.84
360.0	357.3	13.302	0.000	0.000	0.00	0.000	1507.36	13.25
380.0	377.1	12.977	0.000	0.000	0.00	0.000	1506.60	12.92
400.0	397.0	12.623	0.000	0.000	0.00	0.000	1505.65	12.57
420.0	416.8	12.235	0.000	0.000	0.00	0.000	1504.58	12.19
440.0	436.6	11.815	0.000	0.000	0.00	0.000	1503.74	11.82
460.0	456.5	11.395	0.000	0.000	0.00	0.000	1502.23	11.34
480.0	476.3	11.090	0.000	0.000	0.00	0.000	1501.51	11.03
500.0	496.1	10.688	0.000	0.000	0.00	0.000	1500.35	10.63
520.0	515.9	9.780	0.000	0.000	0.00	0.000	1497.78	9.72
540.0	535.2	8.878	0.000	0.000	0.00	0.000	1495.23	8.81
560.0	554.8	7.499	0.000	0.000	0.00	0.000	1491.50	7.43
580.0	574.2	6.577	0.000	0.000	0.00	0.000	1489.51	6.40
600.0	593.2	6.016	0.000	0.000	0.00	0.000	1488.92	5.93
620.0	612.1	5.225	0.000	0.000	0.00	0.000	1487.40	5.14
640.0	631.9	4.625	0.000	0.000	0.00	0.000	1486.65	4.53
660.0	651.7	4.182	0.000	0.000	0.00	0.000	1486.50	4.09
680.0	671.4	3.870	0.000	0.000	0.00	0.000	1486.84	3.77
700.0	691.2	3.431	0.000	0.000	0.00	0.000	1486.67	3.33
720.0	710.8	3.138	0.000	0.000	0.00	0.000	1487.16	3.03
740.0	730.4	2.902	0.000	0.000	0.00	0.000	1488.84	2.79
760.0	750.0	2.771	0.000	0.000	0.00	0.000	1488.92	2.65
780.0	769.5	2.603	0.000	0.000	0.00	0.000	1489.41	2.47
800.0	789.0	2.494	0.000	0.000	0.00	0.000	1491.11	2.36
820.0	808.4	2.382	0.000	0.000	0.00	0.000	1492.32	2.24
840.0	827.7	2.290	0.000	0.000	0.00	0.000	1493.63	2.14
860.0	847.1	2.258	0.000	0.000	0.00	0.000	1494.97	2.05
880.0	866.5	2.137	0.000	0.000	0.00	0.000	1496.30	1.97
900.0	885.9	2.077	0.000	0.000	0.00	0.000	1497.74	1.90
920.0	905.3	2.052	0.000	0.000	0.00	0.000	1499.15	1.87
940.0	924.7	2.025	0.000	0.000	0.00	0.000	1500.93	1.83
960.0	944.1	1.997	0.000	0.000	0.00	0.000	1502.49	1.80
980.0	963.5	1.979	0.000	0.000	0.00	0.000	1504.16	1.77
1000.0	982.9	1.964	0.000	0.000	0.00	0.000	1505.78	1.75
1020.0	1002.3	1.955	0.000	0.000	0.00	0.000	1507.48	1.73
1040.0	1021.7	1.946	0.000	0.000	0.00	0.000	1509.12	1.71
1060.0	1041.1	1.931	0.000	0.000	0.00	0.000	1510.79	1.68
1080.0	1060.5	1.929	0.000	0.000	0.00	0.000	1512.43	1.67
1100.0	1079.9	1.926	0.000	0.000	0.00	0.000	1514.01	1.67

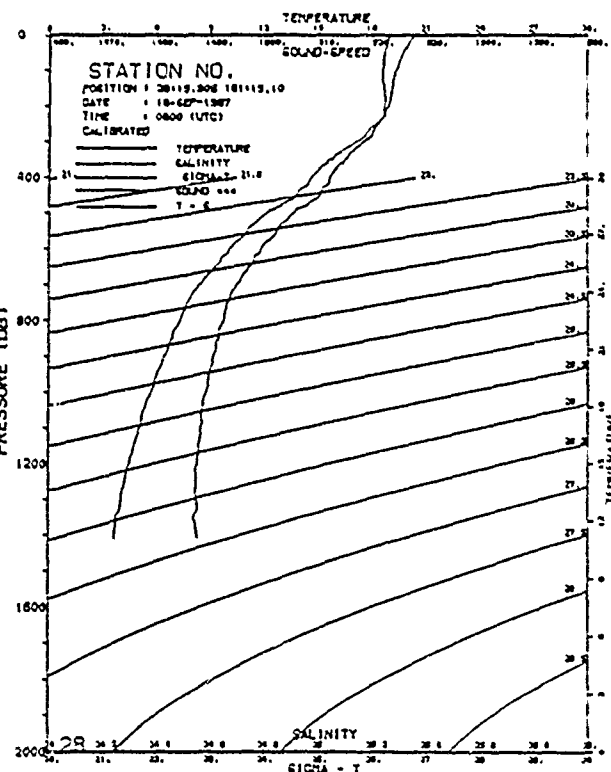
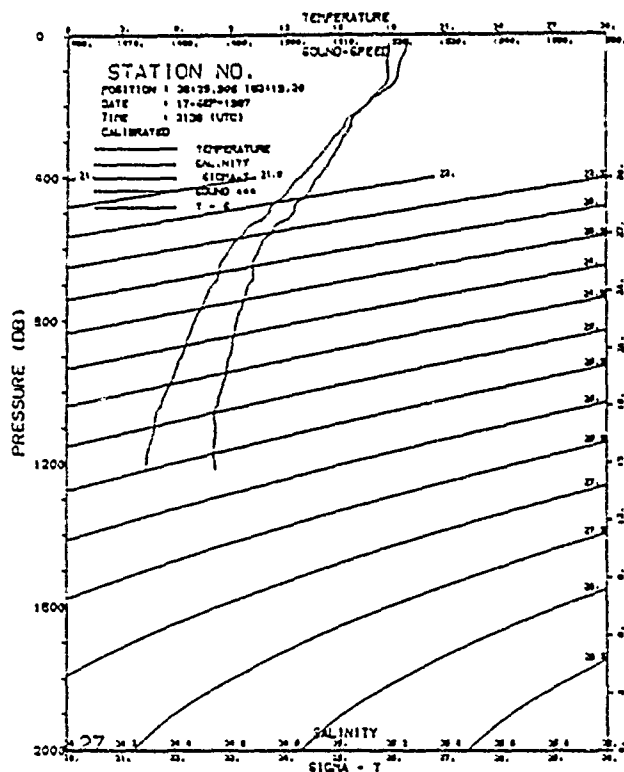


SHIP : MPAS COOK - Plessey  
 STATION NUMBER : 27 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 17-SEP-1987 (DAY NUMBER 260)  
 START TIME : 2138 GMT - 2  
 CRUISE : 0012.87  
 POSITION : 20:25.90S 161:19.20E  
 CUST DEPTH : 1212 METRES  
 BOTTOM DEPTH : 1233 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
10.0	9.9	18.892	0.000	0.000	0.00	0.000	1519.36	18.89 3 0.020 0.000
20.0	19.9	18.846	0.000	0.000	0.00	0.000	1519.43	18.84 37 0.006 0.000
30.0	29.8	18.825	0.000	0.000	0.00	0.000	1519.53	18.82 51 0.013 0.000
40.0	39.7	18.769	0.000	0.000	0.00	0.000	1519.55	18.76 50 0.016 0.001
50.0	49.7	18.716	0.000	0.000	0.00	0.000	1519.58	18.71 54 0.011 0.003
60.0	59.6	18.509	0.000	0.000	0.00	0.000	1519.39	18.50 48 0.033 0.004
70.0	69.5	18.517	0.000	0.000	0.00	0.000	1519.31	18.50 39 0.027 0.004
80.0	79.4	18.449	0.000	0.000	0.00	0.000	1519.27	18.44 50 0.010 0.003
90.0	89.4	18.404	0.000	0.000	0.00	0.000	1519.31	18.39 50 0.012 0.004
100.0	99.3	18.377	0.000	0.000	0.00	0.000	1519.40	18.36 42 0.011 0.003
120.0	119.2	18.308	0.000	0.000	0.00	0.000	1519.51	18.29 50 0.013 0.001
140.0	139.0	18.081	0.000	0.000	0.00	0.000	1519.10	18.06 47 0.074 0.000
160.0	158.9	17.504	0.000	0.000	0.00	0.000	1517.68	17.48 43 0.067 0.000
180.0	178.7	16.907	0.000	0.000	0.00	0.000	1516.19	16.88 38 0.047 0.002
200.0	198.6	16.554	0.000	0.000	0.00	0.000	1515.35	16.52 45 0.099 0.000
220.0	218.4	16.038	0.000	0.000	0.00	0.000	1514.05	16.00 30 0.088 0.000
240.0	238.3	15.496	0.000	0.000	0.00	0.000	1512.68	15.46 47 0.064 0.003
260.0	258.1	15.331	0.000	0.000	0.00	0.000	1512.52	15.29 50 0.038 0.002
280.0	277.9	14.982	0.000	0.000	0.00	0.000	1511.67	14.94 45 0.043 0.000
300.0	297.8	14.594	0.000	0.000	0.00	0.000	1510.76	14.55 46 0.018 0.000
320.0	317.6	14.287	0.000	0.000	0.00	0.000	1510.09	14.24 35 0.021 0.002
340.0	337.5	13.991	0.000	0.000	0.00	0.000	1509.40	13.94 27 0.019 0.000
360.0	357.3	13.607	0.000	0.000	0.00	0.000	1508.43	13.56 25 0.025 0.003
380.0	377.1	13.282	0.000	0.000	0.00	0.000	1507.57	13.23 31 0.060 0.003
400.0	396.9	12.926	0.000	0.000	0.00	0.000	1506.67	12.87 32 0.058 0.004
420.0	416.7	12.493	0.000	0.000	0.00	0.000	1505.55	12.44 30 0.027 0.000
440.0	436.5	12.214	0.000	0.000	0.00	0.000	1504.90	12.16 30 0.037 0.000
460.0	456.4	11.871	0.000	0.000	0.00	0.000	1503.96	11.81 21 0.036 0.000
480.0	476.2	11.286	0.000	0.000	0.00	0.000	1502.18	11.22 30 0.048 0.002
500.0	496.1	11.135	0.000	0.000	0.00	0.000	1501.97	11.07 27 0.045 0.004
520.0	515.8	9.826	0.000	0.000	0.00	0.000	1497.95	9.76 32 0.026 0.000
540.0	535.6	8.989	0.000	0.000	0.00	0.000	1495.60	8.92 31 0.020 0.000
560.0	555.4	8.255	0.000	0.000	0.00	0.000	1493.62	7.98 31 0.038 0.004
580.0	575.1	7.761	0.000	0.000	0.00	0.000	1491.39	6.98 31 0.025 0.004
600.0	594.8	6.328	0.000	0.000	0.00	0.200	1490.12	6.24 33 0.042 0.000
1000.0	990.3	5.432	0.000	0.000	0.00	0.000	1488.40	5.39 29 0.027 0.000
1100.0	1089.8	4.855	0.000	0.000	0.00	0.000	1487.55	4.76 31 0.004 0.000
1200.0	1188.5	4.401	0.000	0.000	0.00	0.000	1487.38	4.30 32 0.004 0.000
1223.0	1200.3	4.345	0.000	0.000	0.00	0.000	1487.45	4.25 61 0.009 0.000

SHIP : MPAS COOK - Plessey  
 STATION NUMBER : 28 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 18-SEP-1987 (DAY NUMBER 261)  
 START TIME : 0800 GMT - 2  
 CRUISE : 0012.87  
 POSITION : 20:15.90S 161:15.10E  
 CUST DEPTH : 1395 METRES  
 BOTTOM DEPTH : 1431 METRES

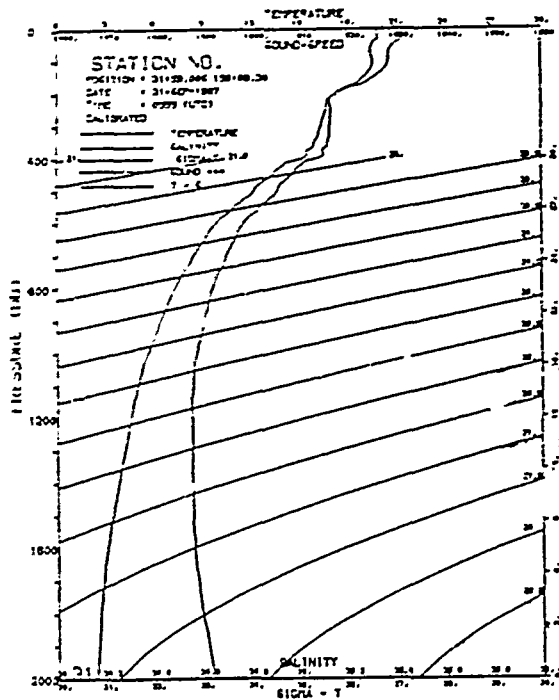
PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
10.0	9.9	20.152	0.000	0.000	0.00	0.000	1522.95	20.15 44 0.054 0.042
20.0	19.9	20.042	0.000	0.000	0.00	0.000	1522.84	20.04 48 0.030 0.031
30.0	29.8	19.963	0.000	0.000	0.00	0.000	1522.80	19.96 56 0.019 0.020
40.0	39.7	19.802	0.000	0.000	0.00	0.000	1522.49	19.79 55 0.060 0.058
50.0	49.7	19.711	0.000	0.000	0.00	0.000	1522.40	19.70 43 0.017 0.023
60.0	59.6	19.626	0.000	0.000	0.00	0.000	1522.31	19.62 43 0.020 0.020
70.0	69.5	19.545	0.000	0.000	0.00	0.000	1522.23	19.53 52 0.027 0.027
80.0	79.4	19.475	0.000	0.000	0.00	0.000	1522.23	19.46 46 0.011 0.009
90.0	89.4	19.430	0.000	0.000	0.00	0.000	1522.24	19.41 42 0.020 0.023
100.0	99.3	19.310	0.000	0.000	0.00	0.000	1522.08	19.29 53 0.019 0.036
120.0	119.2	19.215	0.000	0.000	0.00	0.000	1522.09	19.19 46 0.021 0.026
140.0	139.0	19.115	0.000	0.000	0.00	0.000	1522.18	19.09 57 0.006 0.006
160.0	158.9	19.066	0.000	0.000	0.00	0.000	1522.37	19.04 49 0.006 0.003
180.0	178.7	19.009	0.000	0.000	0.00	0.000	1522.54	18.98 42 0.210 1.550
200.0	198.6	18.889	0.000	0.000	0.00	0.000	1522.47	18.85 47 0.025 0.000
220.0	218.4	18.725	0.000	0.000	0.00	0.000	1522.36	18.69 51 0.039 0.000
240.0	238.2	18.557	0.000	0.000	0.00	0.000	1521.85	18.41 52 0.042 0.002
260.0	258.1	17.971	0.000	0.000	0.00	0.000	1520.72	17.93 55 0.055 0.000
280.0	277.9	17.684	0.000	0.000	0.00	0.000	1520.23	17.64 60 0.035 0.002
300.0	297.8	17.163	0.000	0.000	0.00	0.000	1518.85	17.11 37 0.066 0.004
320.0	317.6	16.520	0.000	0.000	0.00	0.000	1517.16	16.47 28 0.080 0.002
340.0	337.4	15.969	0.000	0.000	0.00	0.000	1515.81	15.91 32 0.034 0.003
360.0	357.3	15.565	0.000	0.000	0.00	0.000	1514.80	15.51 28 0.058 0.112
380.0	377.1	15.020	0.000	0.000	0.00	0.000	1513.37	14.96 25 0.270 0.378
400.0	396.9	14.642	0.000	0.000	0.00	0.000	1512.49	14.58 28 0.045 0.267
420.0	416.7	14.412	0.000	0.000	0.00	0.000	1512.10	14.35 36 0.036 0.255
440.0	436.5	13.898	0.000	0.000	0.00	0.000	1510.72	13.83 32 0.047 0.050
460.0	456.4	13.528	0.000	0.000	0.00	0.000	1509.79	13.49 29 0.093 0.111
480.0	476.2	12.956	0.000	0.000	0.00	0.000	1508.08	12.89 30 0.058 0.610
500.0	496.0	12.145	0.000	0.000	0.00	0.000	1505.58	12.08 32 0.062 0.859
520.0	515.8	11.059	0.000	0.000	0.00	0.000	1502.60	10.99 39 0.024 0.323
540.0	535.6	10.053	0.000	0.000	0.00	0.000	1499.70	9.98 32 0.025 0.022
560.0	555.4	8.414	0.000	0.000	0.00	0.000	1495.08	8.34 35 0.085 0.373
580.0	575.1	7.326	0.000	0.000	0.00	0.000	1492.53	7.25 29 0.030 0.023
600.0	594.8	6.450	0.000	0.000	0.00	0.000	1490.68	6.37 36 0.021 0.027
1000.0	990.9	5.710	0.000	0.000	0.00	0.000	1489.40	5.62 36 0.027 0.015
1100.0	1089.7	5.103	0.000	0.000	0.00	0.000	1488.52	5.01 34 0.3612 1.149
1200.0	1188.5	4.519	0.000	0.000	0.00	0.000	1487.90	4.42 30 0.006 0.200
1300.0	1287.2	4.055	0.000	0.000	0.00	0.000	1487.63	3.95 32 0.005 0.203
1400.0	1385.9	3.669	0.000	0.000	0.00	0.000	1487.71	3.46 48 0.007 0.702
1410.0	1395.8	3.655	0.000	0.000	0.00	0.000	1487.77	3.55 38 0.000 0.500





STATION NO. 11111111  
 DATE 21-02-1987  
 TIME 1700 (UTC)  
 CALIBRATED  
 TEMPERATURE  
 SALINITY  
 SIGMA-T  
 T - C

DEPTH (M)	TEMP (C)	SAL (PPT)	SIGMA-T	TEMP (F)	SAL (PPT)	SIGMA-T
0.0	12.0	35.0	1.020	54.0	35.0	1.020
10.0	11.5	35.0	1.020	52.7	35.0	1.020
20.0	11.0	35.0	1.020	51.8	35.0	1.020
30.0	10.5	35.0	1.020	50.9	35.0	1.020
40.0	10.0	35.0	1.020	50.0	35.0	1.020
50.0	9.5	35.0	1.020	49.1	35.0	1.020
60.0	9.0	35.0	1.020	48.2	35.0	1.020
70.0	8.5	35.0	1.020	47.3	35.0	1.020
80.0	8.0	35.0	1.020	46.4	35.0	1.020
90.0	7.5	35.0	1.020	45.5	35.0	1.020
100.0	7.0	35.0	1.020	44.6	35.0	1.020
110.0	6.5	35.0	1.020	43.7	35.0	1.020
120.0	6.0	35.0	1.020	42.8	35.0	1.020
130.0	5.5	35.0	1.020	41.9	35.0	1.020
140.0	5.0	35.0	1.020	41.0	35.0	1.020
150.0	4.5	35.0	1.020	40.1	35.0	1.020
160.0	4.0	35.0	1.020	39.2	35.0	1.020
170.0	3.5	35.0	1.020	38.3	35.0	1.020
180.0	3.0	35.0	1.020	37.4	35.0	1.020
190.0	2.5	35.0	1.020	36.5	35.0	1.020
200.0	2.0	35.0	1.020	35.6	35.0	1.020
210.0	1.5	35.0	1.020	34.7	35.0	1.020
220.0	1.0	35.0	1.020	33.8	35.0	1.020
230.0	0.5	35.0	1.020	32.9	35.0	1.020
240.0	0.0	35.0	1.020	32.0	35.0	1.020
250.0	-0.5	35.0	1.020	31.1	35.0	1.020
260.0	-1.0	35.0	1.020	30.2	35.0	1.020
270.0	-1.5	35.0	1.020	29.3	35.0	1.020
280.0	-2.0	35.0	1.020	28.4	35.0	1.020
290.0	-2.5	35.0	1.020	27.5	35.0	1.020
300.0	-3.0	35.0	1.020	26.6	35.0	1.020
310.0	-3.5	35.0	1.020	25.7	35.0	1.020
320.0	-4.0	35.0	1.020	24.8	35.0	1.020
330.0	-4.5	35.0	1.020	23.9	35.0	1.020
340.0	-5.0	35.0	1.020	23.0	35.0	1.020
350.0	-5.5	35.0	1.020	22.1	35.0	1.020
360.0	-6.0	35.0	1.020	21.2	35.0	1.020
370.0	-6.5	35.0	1.020	20.3	35.0	1.020
380.0	-7.0	35.0	1.020	19.4	35.0	1.020
390.0	-7.5	35.0	1.020	18.5	35.0	1.020
400.0	-8.0	35.0	1.020	17.6	35.0	1.020
410.0	-8.5	35.0	1.020	16.7	35.0	1.020
420.0	-9.0	35.0	1.020	15.8	35.0	1.020
430.0	-9.5	35.0	1.020	14.9	35.0	1.020
440.0	-10.0	35.0	1.020	14.0	35.0	1.020
450.0	-10.5	35.0	1.020	13.1	35.0	1.020
460.0	-11.0	35.0	1.020	12.2	35.0	1.020
470.0	-11.5	35.0	1.020	11.3	35.0	1.020
480.0	-12.0	35.0	1.020	10.4	35.0	1.020
490.0	-12.5	35.0	1.020	9.5	35.0	1.020
500.0	-13.0	35.0	1.020	8.6	35.0	1.020
510.0	-13.5	35.0	1.020	7.7	35.0	1.020
520.0	-14.0	35.0	1.020	6.8	35.0	1.020
530.0	-14.5	35.0	1.020	5.9	35.0	1.020
540.0	-15.0	35.0	1.020	5.0	35.0	1.020
550.0	-15.5	35.0	1.020	4.1	35.0	1.020
560.0	-16.0	35.0	1.020	3.2	35.0	1.020
570.0	-16.5	35.0	1.020	2.3	35.0	1.020
580.0	-17.0	35.0	1.020	1.4	35.0	1.020
590.0	-17.5	35.0	1.020	0.5	35.0	1.020
600.0	-18.0	35.0	1.020	-0.4	35.0	1.020
610.0	-18.5	35.0	1.020	-1.3	35.0	1.020
620.0	-19.0	35.0	1.020	-2.2	35.0	1.020
630.0	-19.5	35.0	1.020	-3.1	35.0	1.020
640.0	-20.0	35.0	1.020	-4.0	35.0	1.020
650.0	-20.5	35.0	1.020	-4.9	35.0	1.020
660.0	-21.0	35.0	1.020	-5.8	35.0	1.020
670.0	-21.5	35.0	1.020	-6.7	35.0	1.020
680.0	-22.0	35.0	1.020	-7.6	35.0	1.020
690.0	-22.5	35.0	1.020	-8.5	35.0	1.020
700.0	-23.0	35.0	1.020	-9.4	35.0	1.020
710.0	-23.5	35.0	1.020	-10.3	35.0	1.020
720.0	-24.0	35.0	1.020	-11.2	35.0	1.020
730.0	-24.5	35.0	1.020	-12.1	35.0	1.020
740.0	-25.0	35.0	1.020	-13.0	35.0	1.020
750.0	-25.5	35.0	1.020	-13.9	35.0	1.020
760.0	-26.0	35.0	1.020	-14.8	35.0	1.020
770.0	-26.5	35.0	1.020	-15.7	35.0	1.020
780.0	-27.0	35.0	1.020	-16.6	35.0	1.020
790.0	-27.5	35.0	1.020	-17.5	35.0	1.020
800.0	-28.0	35.0	1.020	-18.4	35.0	1.020
810.0	-28.5	35.0	1.020	-19.3	35.0	1.020
820.0	-29.0	35.0	1.020	-20.2	35.0	1.020
830.0	-29.5	35.0	1.020	-21.1	35.0	1.020
840.0	-30.0	35.0	1.020	-22.0	35.0	1.020
850.0	-30.5	35.0	1.020	-22.9	35.0	1.020
860.0	-31.0	35.0	1.020	-23.8	35.0	1.020
870.0	-31.5	35.0	1.020	-24.7	35.0	1.020
880.0	-32.0	35.0	1.020	-25.6	35.0	1.020
890.0	-32.5	35.0	1.020	-26.5	35.0	1.020
900.0	-33.0	35.0	1.020	-27.4	35.0	1.020
910.0	-33.5	35.0	1.020	-28.3	35.0	1.020
920.0	-34.0	35.0	1.020	-29.2	35.0	1.020
930.0	-34.5	35.0	1.020	-30.1	35.0	1.020
940.0	-35.0	35.0	1.020	-31.0	35.0	1.020
950.0	-35.5	35.0	1.020	-31.9	35.0	1.020
960.0	-36.0	35.0	1.020	-32.8	35.0	1.020
970.0	-36.5	35.0	1.020	-33.7	35.0	1.020
980.0	-37.0	35.0	1.020	-34.6	35.0	1.020
990.0	-37.5	35.0	1.020	-35.5	35.0	1.020
1000.0	-38.0	35.0	1.020	-36.4	35.0	1.020



STATION NO. 11111111  
 POSITION 31-12-00N 131-00-00E  
 DATE 21-02-1987  
 TIME 1700 (UTC)  
 CALIBRATED  
 TEMPERATURE  
 SALINITY  
 SIGMA-T  
 T - C

DEPTH (M)	TEMP (C)	SAL (PPT)	SIGMA-T	TEMP (F)	SAL (PPT)	SIGMA-T
0.0	12.0	35.0	1.020	54.0	35.0	1.020
10.0	11.5	35.0	1.020	52.7	35.0	1.020
20.0	11.0	35.0	1.020	51.8	35.0	1.020
30.0	10.5	35.0	1.020	50.9	35.0	1.020
40.0	10.0	35.0	1.020	50.0	35.0	1.020
50.0	9.5	35.0	1.020	49.1	35.0	1.020
60.0	9.0	35.0	1.020	48.2	35.0	1.020
70.0	8.5	35.0	1.020	47.3	35.0	1.020
80.0	8.0	35.0	1.020	46.4	35.0	1.020
90.0	7.5	35.0	1.020	45.5	35.0	1.020
100.0	7.0	35.0	1.020	44.6	35.0	1.020
110.0	6.5	35.0	1.020	43.7	35.0	1.020
120.0	6.0	35.0	1.020	42.8	35.0	1.020
130.0	5.5	35.0	1.020	41.9	35.0	1.020
140.0	5.0	35.0	1.020	41.0	35.0	1.020
150.0	4.5	35.0	1.020	40.1	35.0	1.020
160.0	4.0	35.0	1.020	39.2	35.0	1.020
170.0	3.5	35.0	1.020	38.3	35.0	1.020
180.0	3.0	35.0	1.020	37.4	35.0	1.020
190.0	2.5	35.0	1.020	36.5	35.0	1.020
200.0	2.0	35.0	1.020	35.6	35.0	1.020
210.0	1.5	35.0	1.020	34.7	35.0	1.020
220.0	1.0	35.0	1.020	33.8	35.0	1.020
230.0	0.5	35.0	1.020	32.9	35.0	1.020
240.0	0.0	35.0	1.020	32.0	35.0	1.020
250.0	-0.5	35.0	1.020	31.1	35.0	1.020
260.0	-1.0	35.0	1.020	30.2	35.0	1.020
270.0	-1.5	35.0	1.020	29.3	35.0	1.020
280.0	-2.0	35.0	1.020	28.4	35.0	1.020
290.0	-2.5	35.0	1.020	27.5	35.0	1.020
300.0	-3.0	35.0	1.020	26.6	35.0	1.020
310.0	-3.5	35.0	1.020	25.7	35.0	1.020
320.0	-4.0	35.0	1.020	24.8	35.0	1.020
330.0	-4.5	35.0	1.020	23.9	35.0	1.020
340.0	-5.0	35.0	1.020	23.0	35.0	1.020
350.0	-5.5	35.0	1.020	22.1	35.0	1.020
360.0	-6.0	35.0	1.020	21.2	35.0	1.020
370.0	-6.5	35.0	1.020	20.3	35.0	1.020
380.0	-7.0	35.0	1.020	19.4	35.0	1.020
390.0	-7.5	35.0	1.020	18.5	35.0	1.020
400.0	-8.0	35.0	1.020	17.6	35.0	1.020
410.0	-8.5	35.0	1.020	16.7	35.0	1.020
420.0	-9.0	35.0	1.020	15.8	35.0	1.020
430.0	-9.5	35.0	1.020	14.9	35.0	1.020
440.0	-10.0	35.0	1.020	14.0	35.0	1.020
450.0	-10.5	35.0	1.020	13.1	35.0	1.020
460.0	-11.0	35.0	1.020	12.2	35.0	1.020
470.0	-11.5	35.0	1.020	11.3	35.0	1.020
480.0	-12.0	35.0	1.020	10.4	35.0	1.020
490.0	-12.5	35.0	1.020	9.5	35.0	1.020
500.0	-13.0	35.0	1.020	8.6	35.0	1.020
510.0	-13.5	35.0	1.020	7.7	35.0	1.020
520.0	-14.0	35.0	1.020	6.8	35.0	1.020
530.0	-14.5	35.0	1.020	5.9	35.0	1.020
540.0	-15.0	35.0	1.020	5.0	35.0	1.020
550.0	-15.5	35.0	1.020	4.1	35.0	1.020
560.0	-16.0	35.0	1.020	3.2	35.0	1.020
570.0	-16.5	35.0	1.020	2.3	35.0	1.020
580.0	-17.0	35.0	1.020	1.4	35.0	1.020
590.0	-17.5	35.0	1.020	0.5	35.0	1.020
600.0	-18.0	35.0	1.020	-0.4	35.0	1.020
610.0	-18.5	35.0	1.020	-1.3	35.0	1.020
620.0	-19.0	35.0	1.020	-2.2	35.0	1.020
630.0	-19.5	35.0	1.020	-3.1	35.0	1.020
640.0	-20.0	35.0	1.020	-4.0	35.0	1.020

**PART B - WINTER SURVEYS FOR SEAMAP SOUTH PACIFIC ROUTE B****DATA FOR SEAMAP SURVEY TWO (RANRL 6/85) - ROUTE B - WINTER**

Surface: Sea State, Swell Height and Wind Vectors  
Surface Temperature and Salinity

Subsurface: Bathymetry  
Temperature and Salinity Cross-sections  
Nansen Station Data Listing and Profiles  
VCTOD Data Listings and Profiles  
Currents

Additional data from other sources

**DATA FOR SEAMAP SURVEY FOUR (RANRL 17/86) - ROUTE B - WINTER**

Surface: Sea State, Swell Height and Wind Vectors  
Surface Temperature and Salinity

Subsurface: Bathymetry  
Temperature and Salinity Cross-sections  
Nansen Station Data Data Listings and Profiles  
VCTOD Data Listings and Profiles  
Currents

Additional data from other sources

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## PART B - WINTER SURVEYS FOR SEAMAP SOUTH PACIFIC ROUTE B

Part B presents data from two surveys made to complete Route B Winter. These are SEAMAP 4 (RANRL 17/86) and SEAMAP 2 (RANRL 6/85). Track plots are shown in Figures 51(a), 51(b) (SEAMAP 2); 73 and 85 (SEAMAP 4).

### Data for SEAMAP survey two (RANRL 6/85) - route B - winter

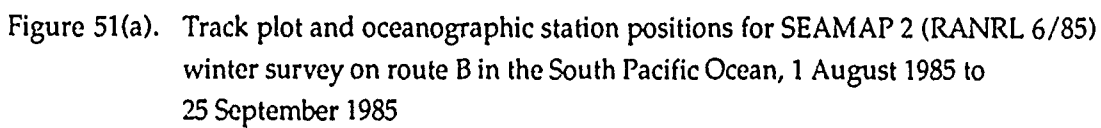
Data is presented for a survey made in south hemispheric winter along the route from Sydney - Dunedin - Chatham Island - Cook Strait - Auckland, from 1 August to 25 September 1985 (figure 51). An uncalibrated test VCTOD station was also made in the Kermadec Trench at 31°52'S, 177°15'W, and a partial XBT section from 26°S, 167°E (on the Norfolk Ridge) to the Newcastle area (figure 51(b)). This XBT section lies on route A, not route B, but is included here as part of the cruise. The survey, designated as RANRL 6/85, and SEAMAP 2 was the second cruise of the SEAMAP series made by Maritime Systems Division on the naval oceanographic research vessel HMAS Cook.

### *Surface parameters*

#### *Sea state, swell height, and wind vectors*

Four-hourly observations made by bridge watchkeepers are shown in figures 52 and 53, these being a subset of hourly observations. Table 1 (page 5) shows the sea conditions associated with the sea state values. Winds up to 30 kn were encountered in the Tasman Sea from Sydney to south of New Zealand, and up to 40 kn east of New Zealand. Sea states of 4 and 5 and three metre swells were common, with up to sea state 8 east of New Zealand, and 6 to 8 m swell. The rough to very rough sea conditions caused the cruise track to be revised considerably.

Text continued on page 97



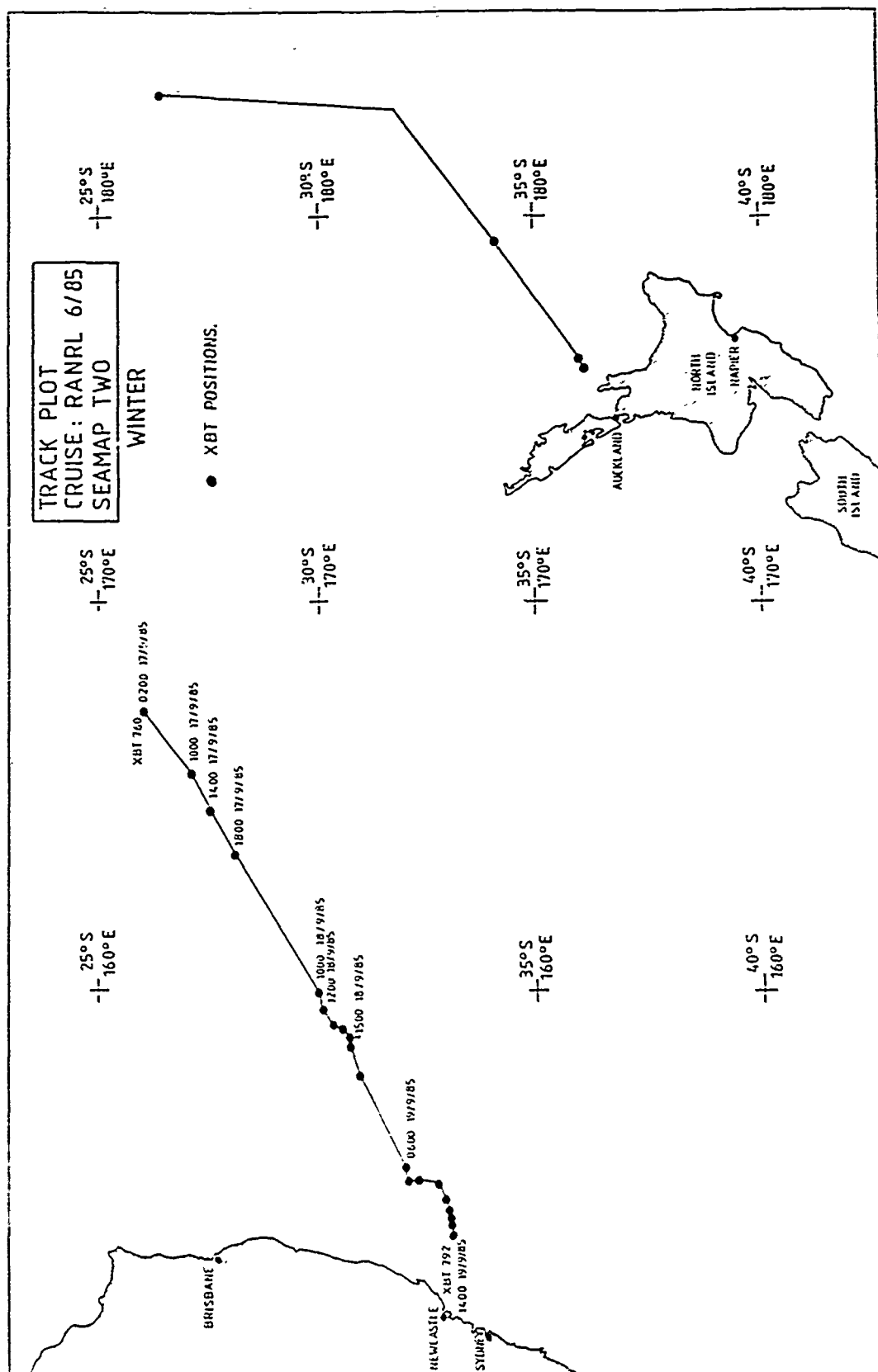


Figure 51(b). Track plot for HMAS Cook and XBT positions after SEAMAP 2 (RANRL 6/85) - return from Auckland to Sydney - September 1985

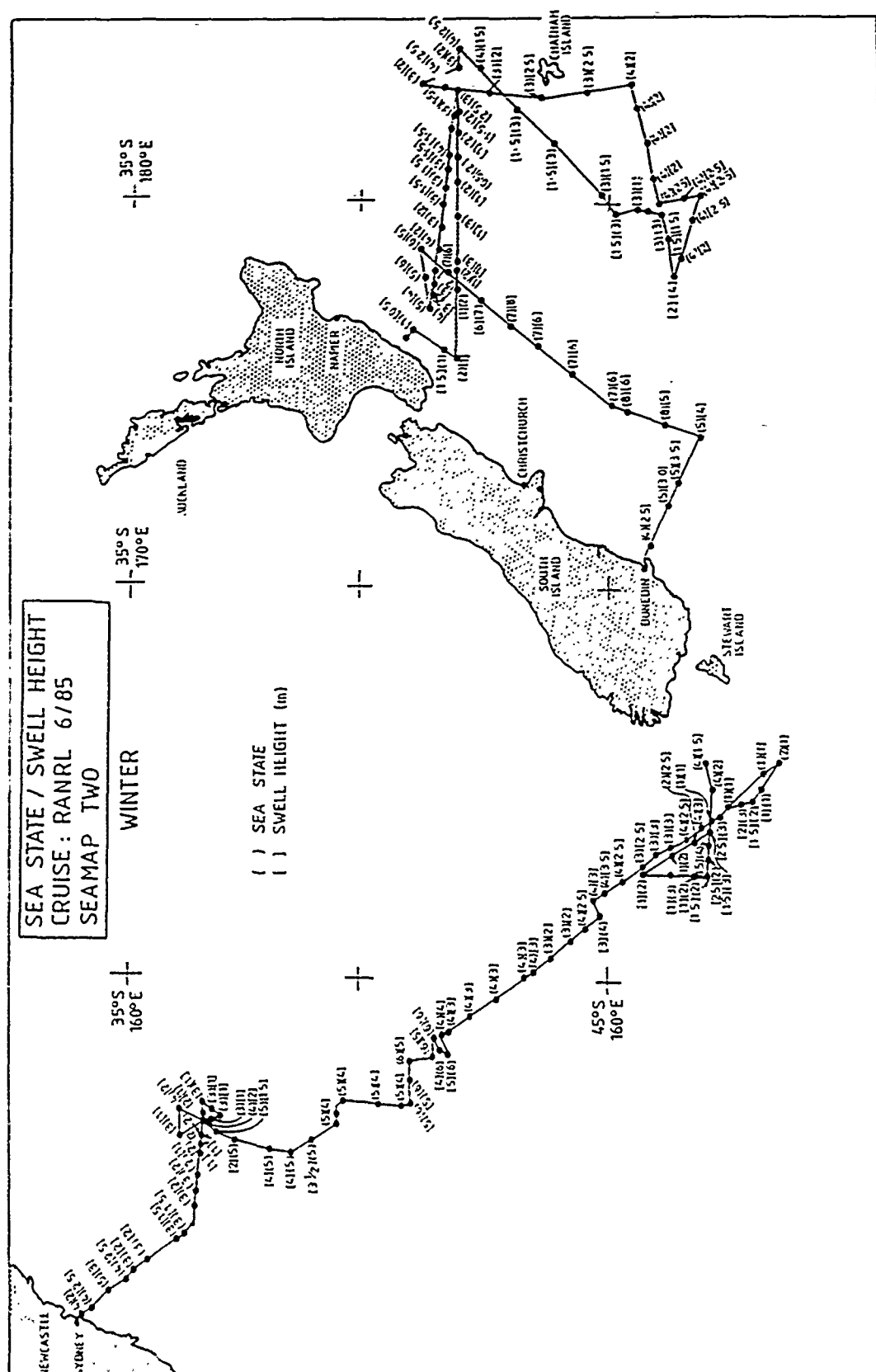


Figure 52. Sea state and swell height for SEAMAP route B in winter 1985 on survey SEAMAP 2 (RANRL 6/85)

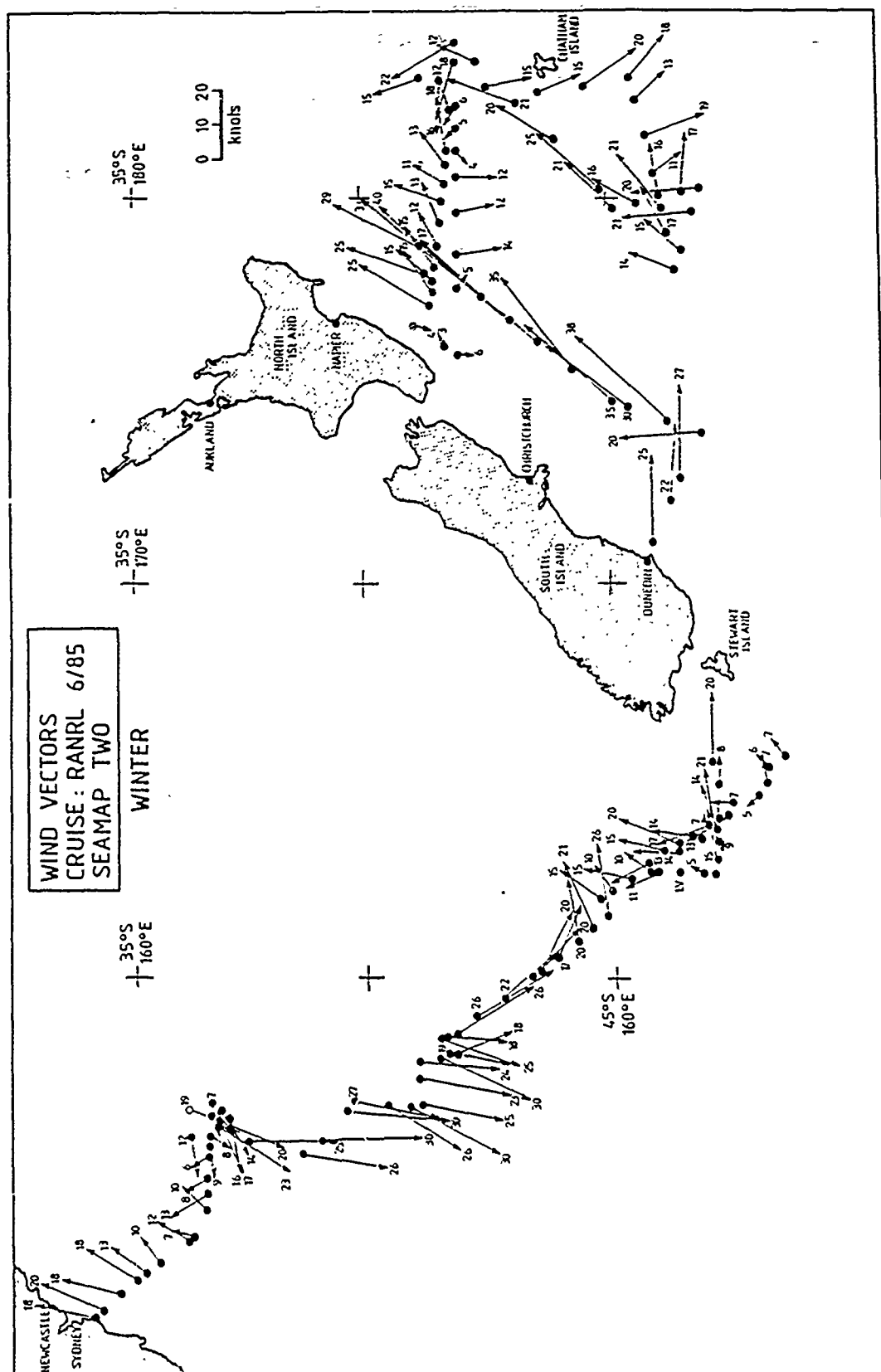


Figure 53. Wind vectors for SEAMAP route B in winter 1985 on survey SEAMAP 2 (RANRL 6/85)

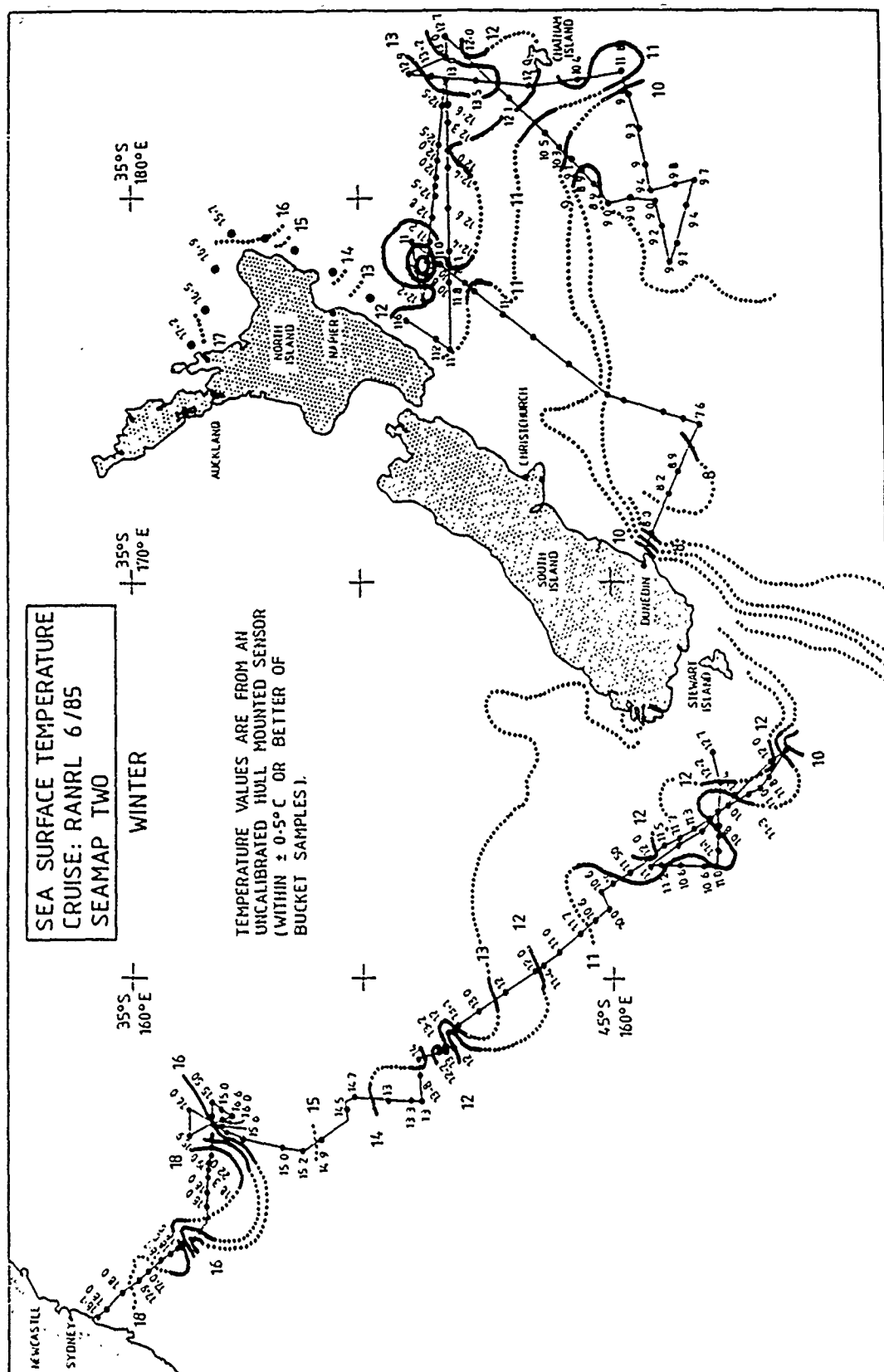


Figure 54. Sea surface temperature for SEAMAP route B in winter 1985 on survey SEAMAP 2 (RANRL 6/85)

*Surface temperature and salinity (figures 54 and 55)*

Sydney to south of New Zealand

Fronts are crossed before waypoint B and near points E and G, where the highest SSTs for the cruise are seen. A meandering pattern occurs south-west of South Island, with warmer waters from 163°E to near the most southern part of the track. Two CSIRO Aspendale satellite images are available for the east Australian area (figures 57(a) and (b)), for 29 July. These show a rather confused picture, but the main front of the EAC is seen well seawards, and north of the cruise track. RMC Wellington satellite derived SST contours for 12 August and 19 August (figure 56) define the southern extent of the warmer waters south west of New Zealand.

The few surface salinities generally decrease with temperature from north-west to south-east along the track except for the southern extremity, where the lowest temperatures for the track are associated with higher salinities (figure 55).

Dunedin to Auckland

RMC Wellington SST contours for 19, 26 August and 2 September 1985 (figure 56) clearly show the Subtropical Convergence southeast and east of New Zealand as a surface front centred near the 10 C isotherm. (Additional SST values are shown on XBT sections.) It appears to act as a dynamic boundary to eastward movement of the warm waters south-west of South Island. (These warm waters go north with the Subtropical Convergence as the Southland Current.) The Subtropical Convergence about Chatham Rise appears to have a double structure, with fronts both north and south of the rise. A warm tongue is seen coming from the north along 177 W across 42 S (figure 54).

The few sparse surface salinity samples generally show higher salinities with higher temperatures, with the higher salinity and temperature waters coming from the north.

Text continued on page 107

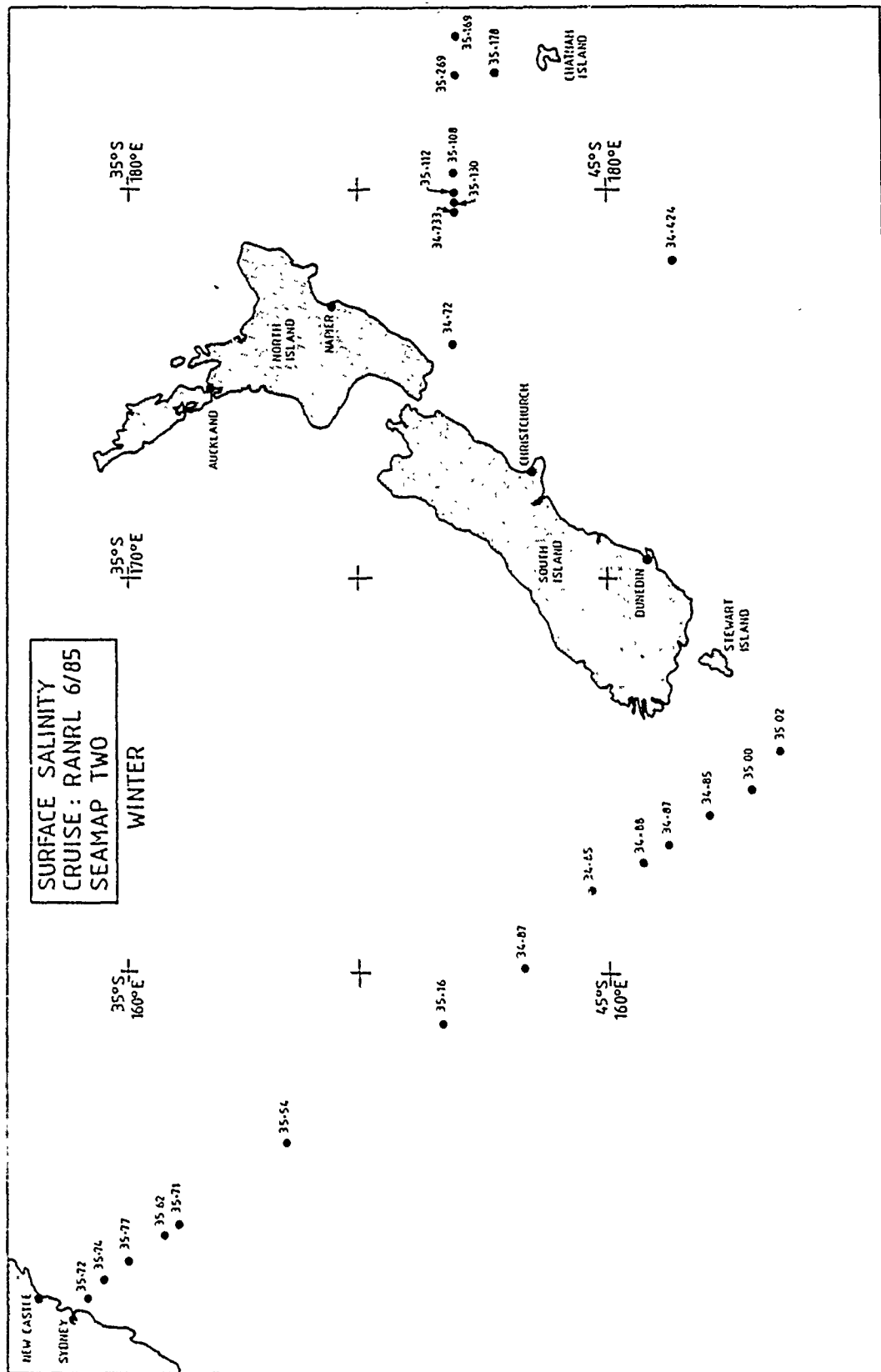


Figure 55. Sea surface salinity values for SEAMAP route B in winter 1985 on survey SEAMAP 2 (RANRL 6/85)



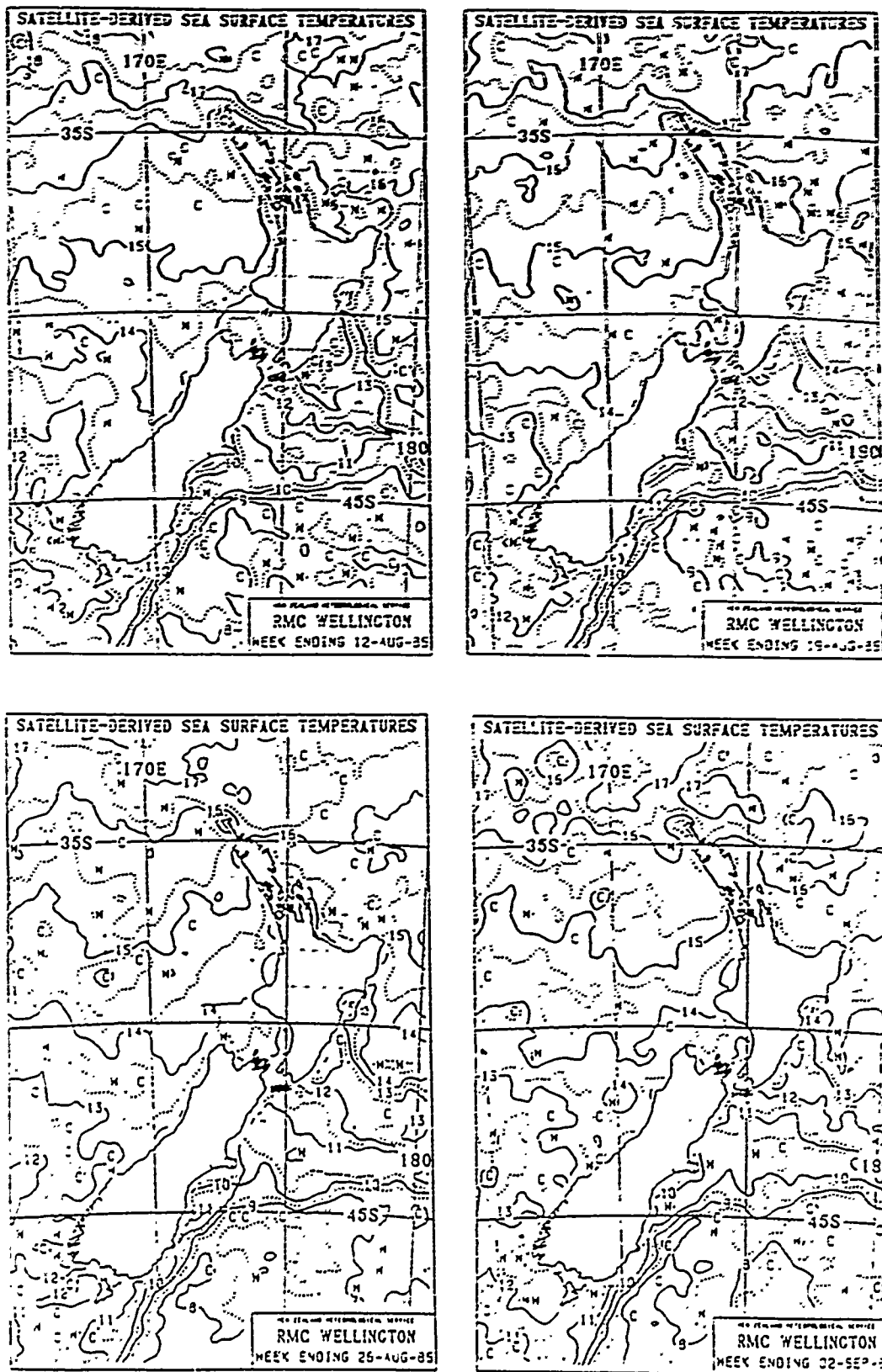


Figure 56. Sea surface temperature contours derived by Royal Meteorological Centre Wellington, New Zealand from satellite data for 12, 19, 26 August and 2 September 1985 coinciding with sections of SEAMAP 2 winter survey (RANRL 6/85) route B

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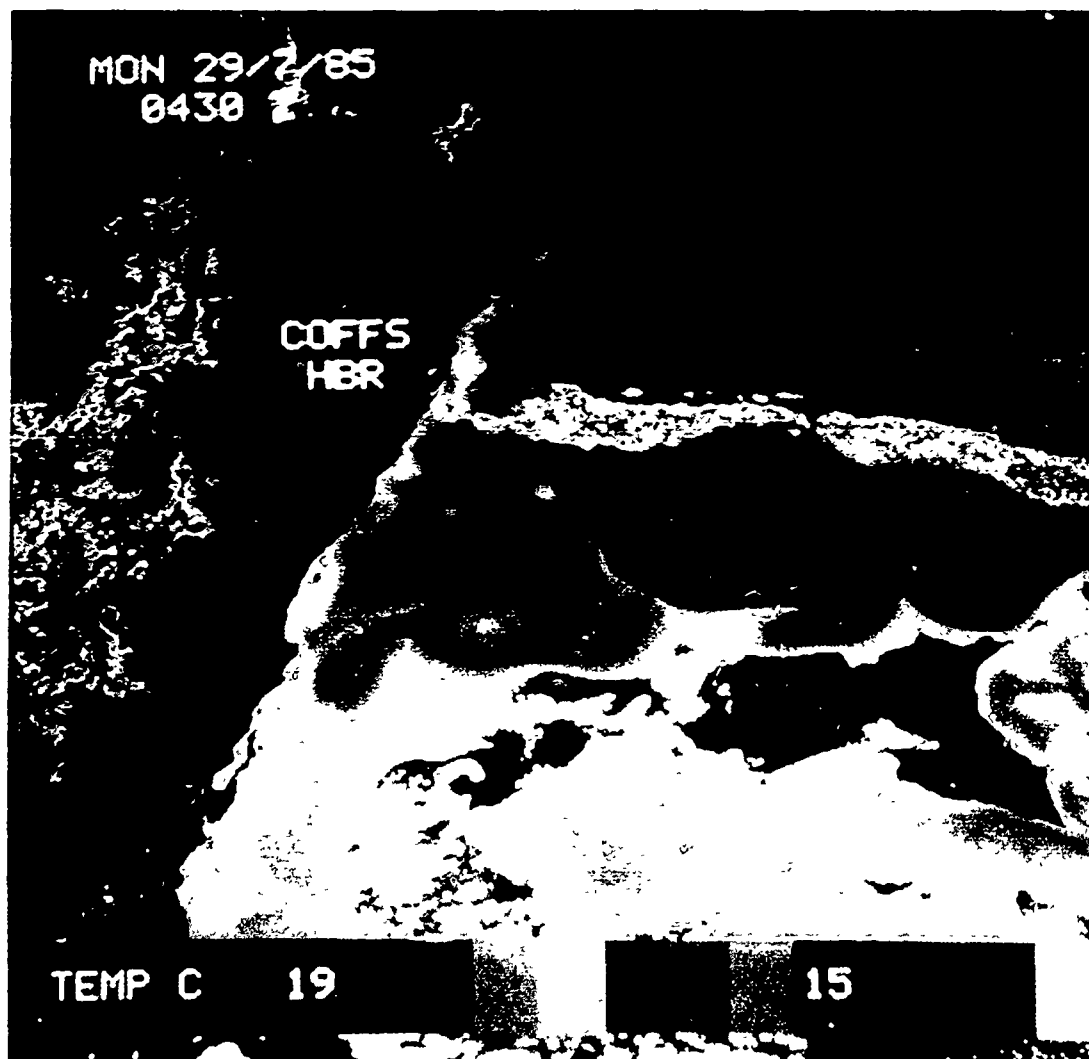


Figure 57(a). Sea surface temperature patterns derived by CSIRO Division of Atmospheric Research, Aspendale Victoria from satellite data for 29 July. Coinciding with sections of SEAMAP 2 winter survey (RANRL 6/85) route B

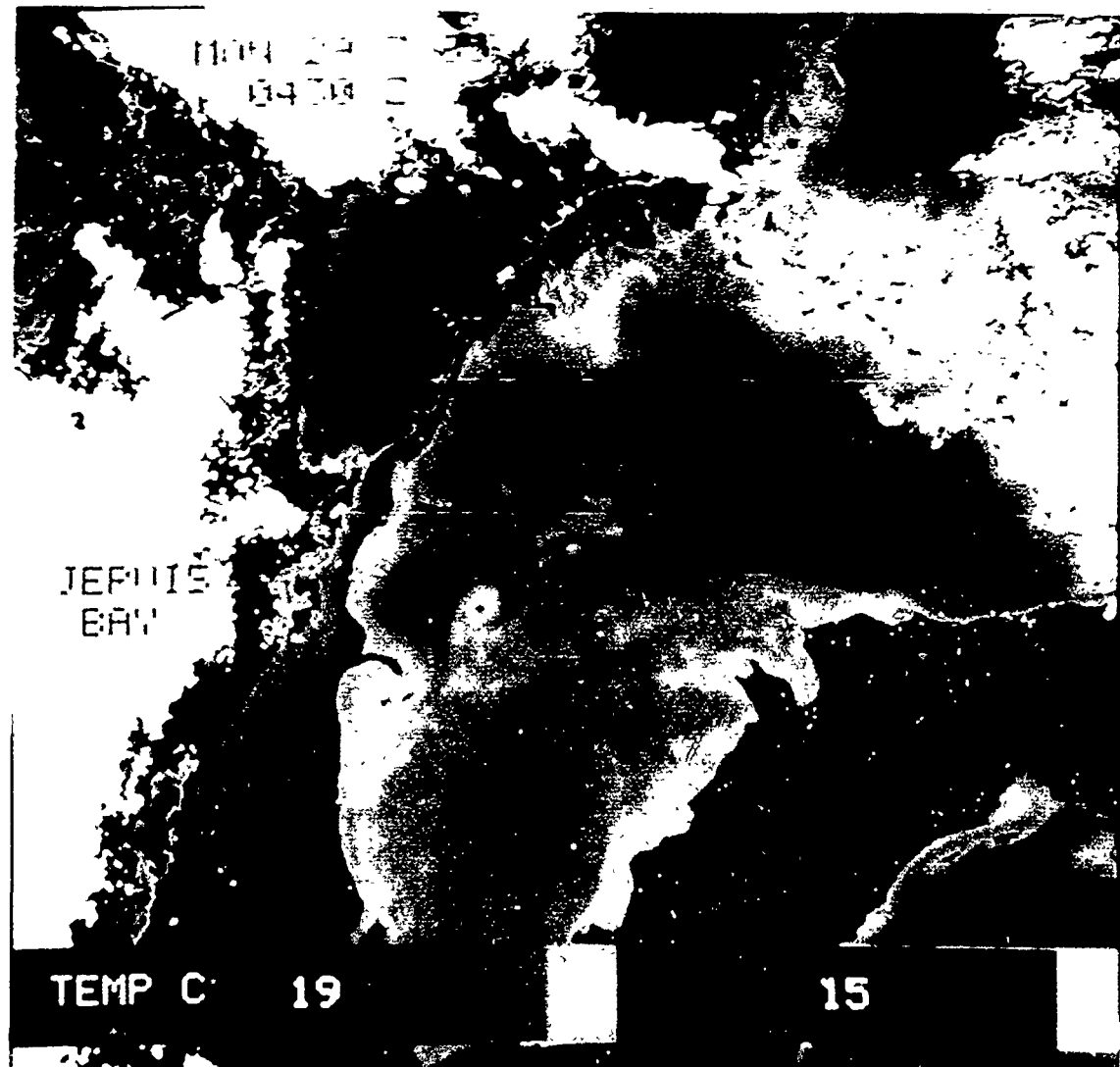


Figure 57(b). Sea surface temperature patterns derived by CSIRO Division of Atmospheric Research, Aspendale Victoria from satellite data for 29 July. Coinciding with sections of SEAMAP 2 winter survey (RANRL 6/85) route B

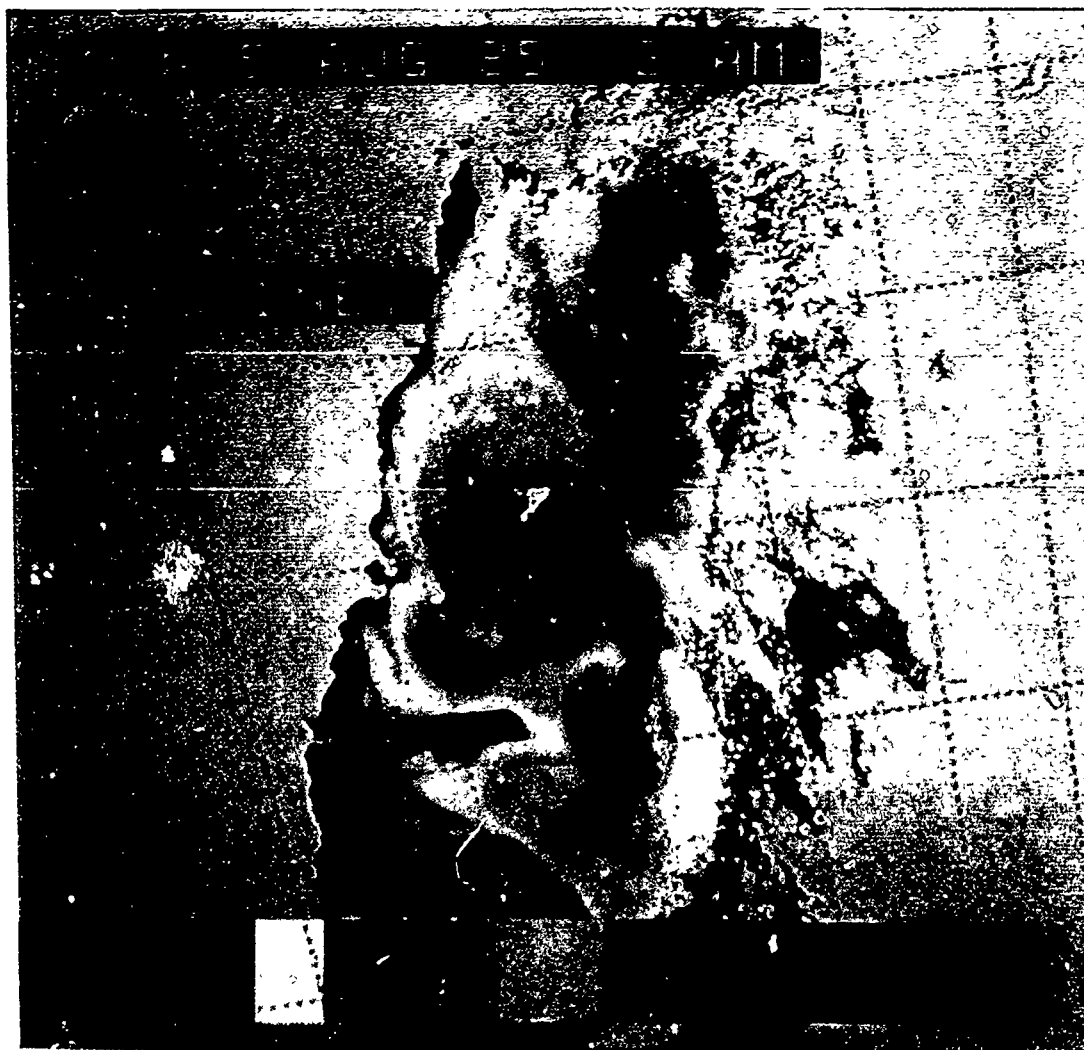


Figure 57(c). Sea surface temperature patterns derived by CSIRO Division of Atmospheric Research, Aspendale Victoria from satellite data for 5 August 1985. Coinciding with sections of SEAMAP 2 winter survey (RANRL 6/85) route B

### *Subsurface parameters*

#### *Bathymetry*

Smoothed interpretations showing major features are given in figures 59 and 64.

#### *XBT/Nansen/VCTOD cross-sections*

##### *XBT temperature cross-sections*

Cross-sections of XBT data are shown in figures 58, 60, 62 and 64. Gaps in sections were caused by periods of seismic profiling, when XBT wires would have fouled the towed streamer (or eel).

##### *Sydney to south of New Zealand (figure 58)*

The first warm water meander of the East Australian Current is crossed from Sydney to waypoint B, with a second eddy or meander between B and G on the western side and north of the Gascoyne Seamount. The first meander has warmer waters on its interior near the edges consistent with the advection of warmer water. A broad, weaker meander is crossed from H to L. Deep mixed layers are seen for the section except at the frontal areas of the warm core meanders. The warmer surface waters south-west of South Island have subsurface penetration to over 300 m, appearing as broad weak flows.

##### *Dunedin to Auckland (Figures 60 and 62)*

Several short XBT sections were taken in periods of calmer weather. The Southland Current (and Subtropical Convergence) are crossed from waypoints a to b. A front is crossed from waypoints h to i where warmer waters from the north meet the Subtropical Convergence. A strong front is seen at waypoint n which is presumably a northward extension of the Subtropical Convergence about the eastern side of the Chatham Rise. This apparent front appears in the section from information from only one XBT. After point n the warm tongue from the north seen in SST (figure 54) is crossed, then waters of uniform surface temperature occur until cooler waters are met before waypoint q as New Zealand is approached. Waters become warmer northward from waypoint q to s, with the East Cape Current crossed before waypoint s, and again between s and t (where it is known as the East Auckland Current).

Text continued on page 115

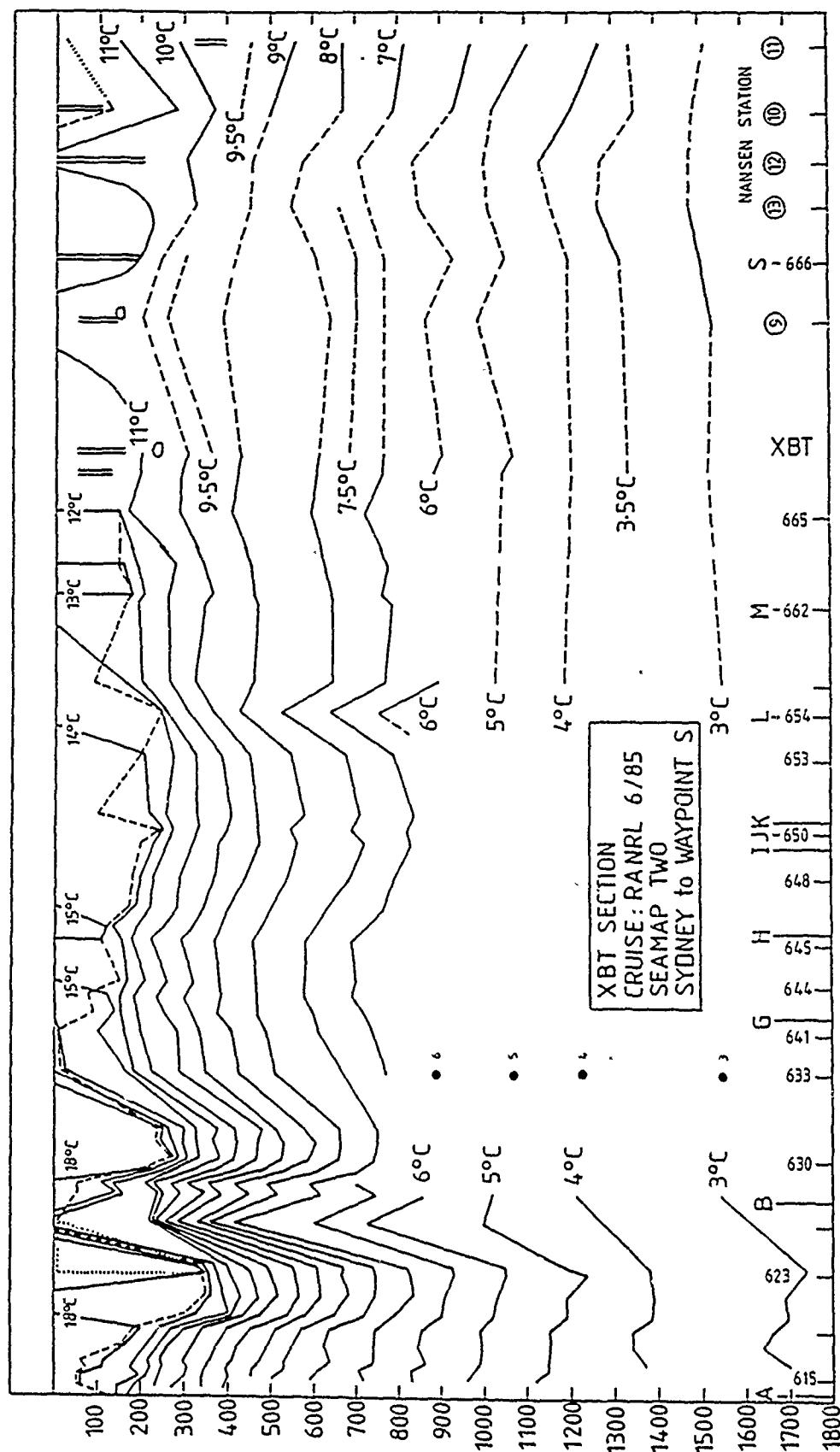
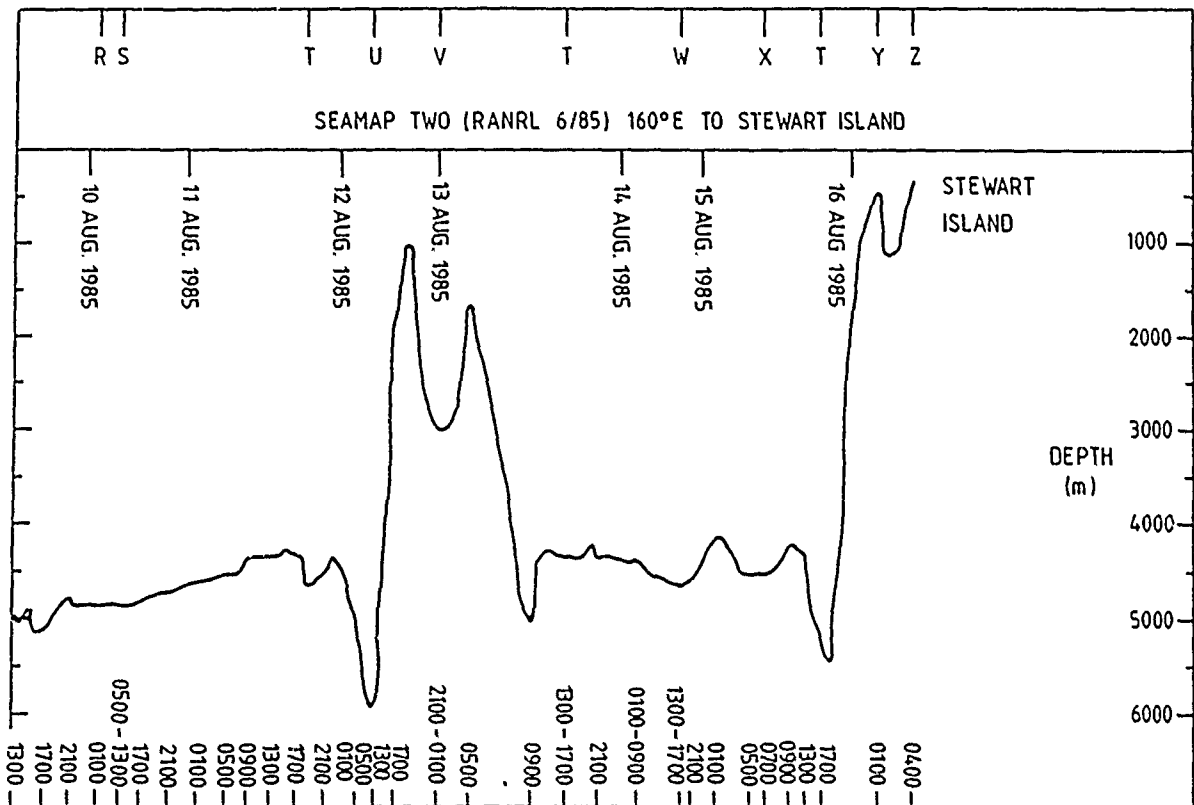


Figure 58. XBT temperature section from Sydney to Nansen station 11 ( $48^{\circ}15'S$ ,  $165^{\circ}45'E$ ) for 1 to 13 August 1985. Winter survey SEAMAP 2 (RANRL 6/85) route B



### Seamap 2 - Route B - Winter



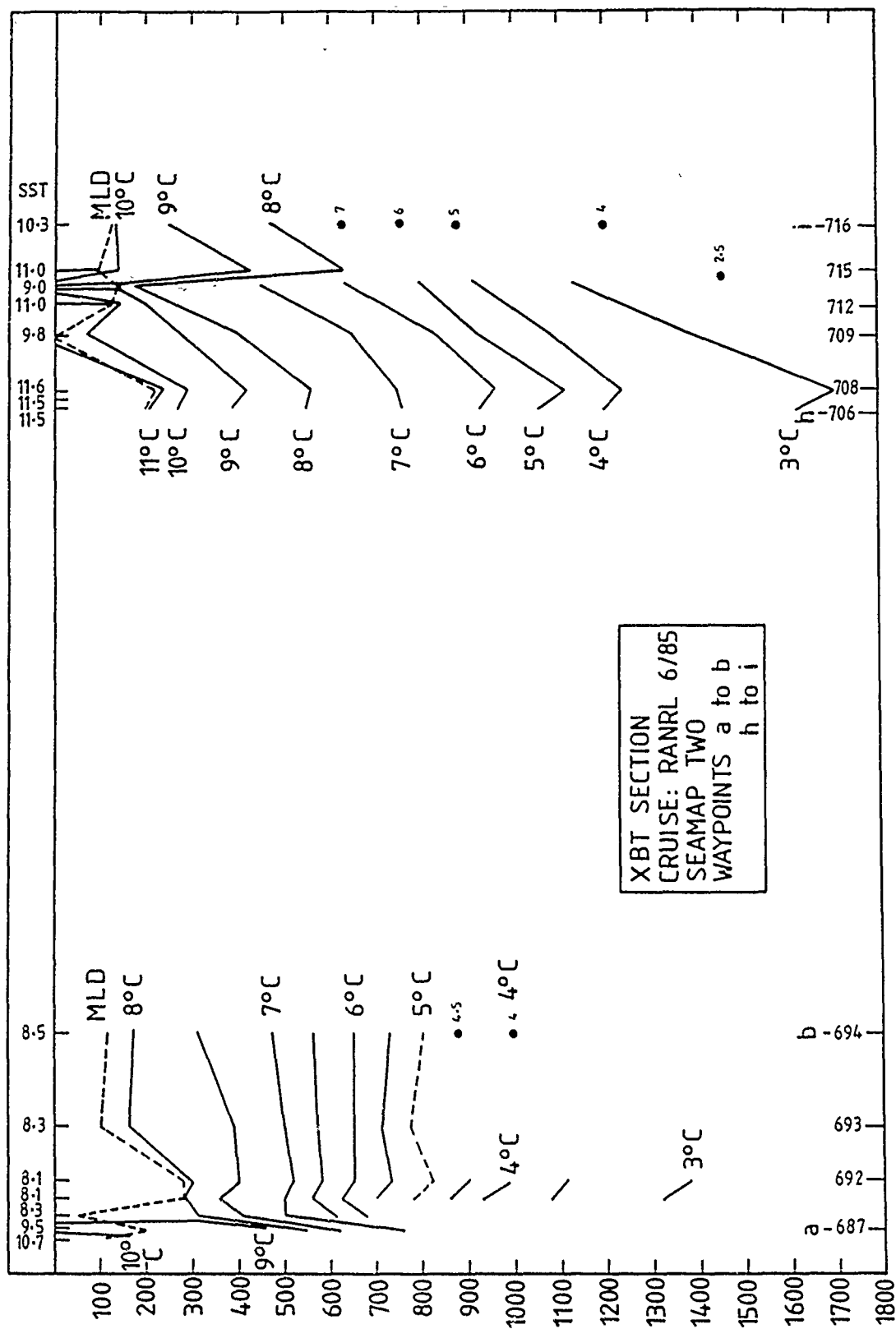


Figure 60. XBT temperature sections from waypoint a to way point b for 20 August, and waypoint h to waypoint i on 25 August 1985. Winter survey SEAMAP 2 (RANRL 6/85) route B

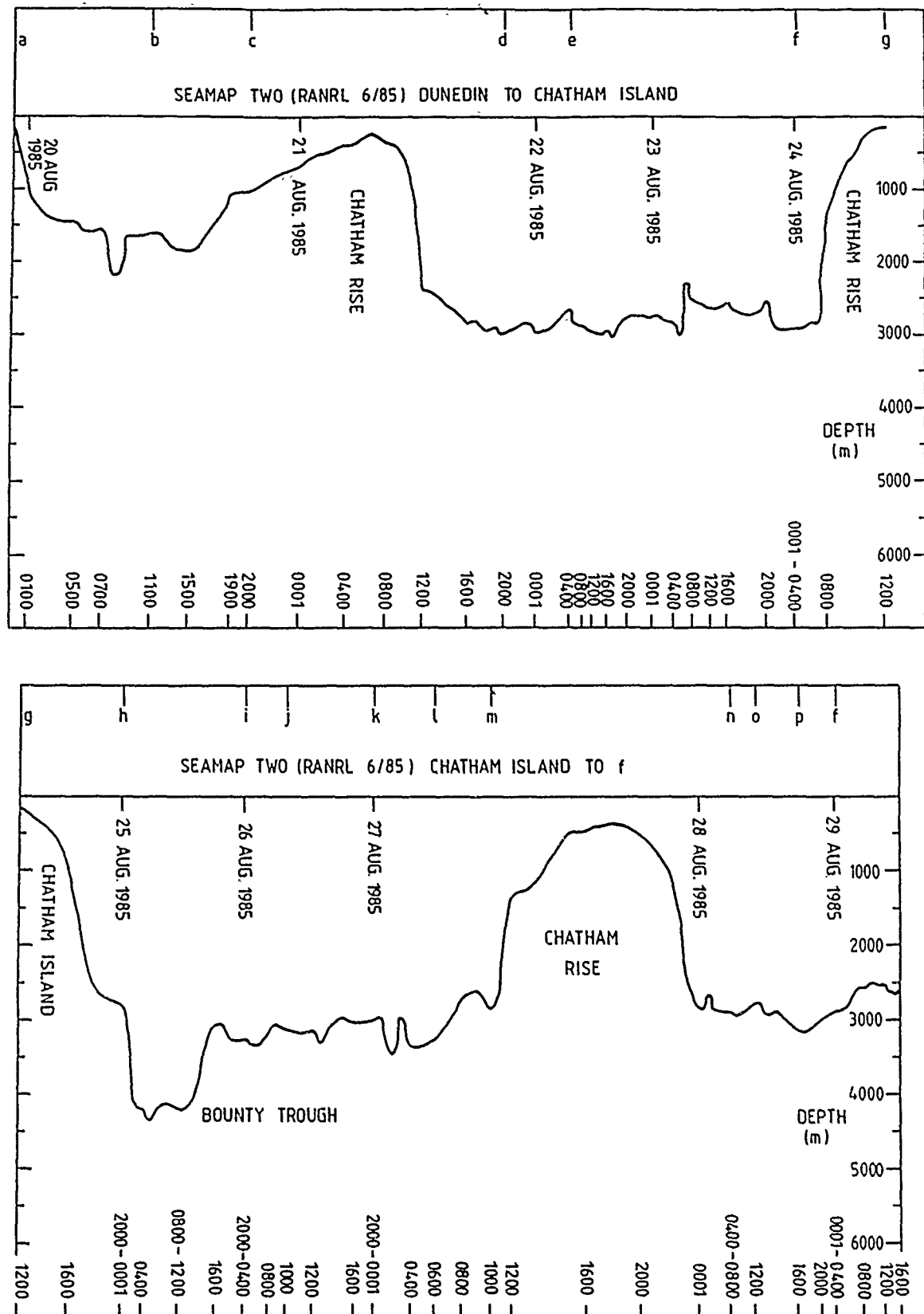


Figure 61. Bathymetry from waypoint a to waypoint p. Winter survey SEAMAP 2 (RANRL 6/85) route B

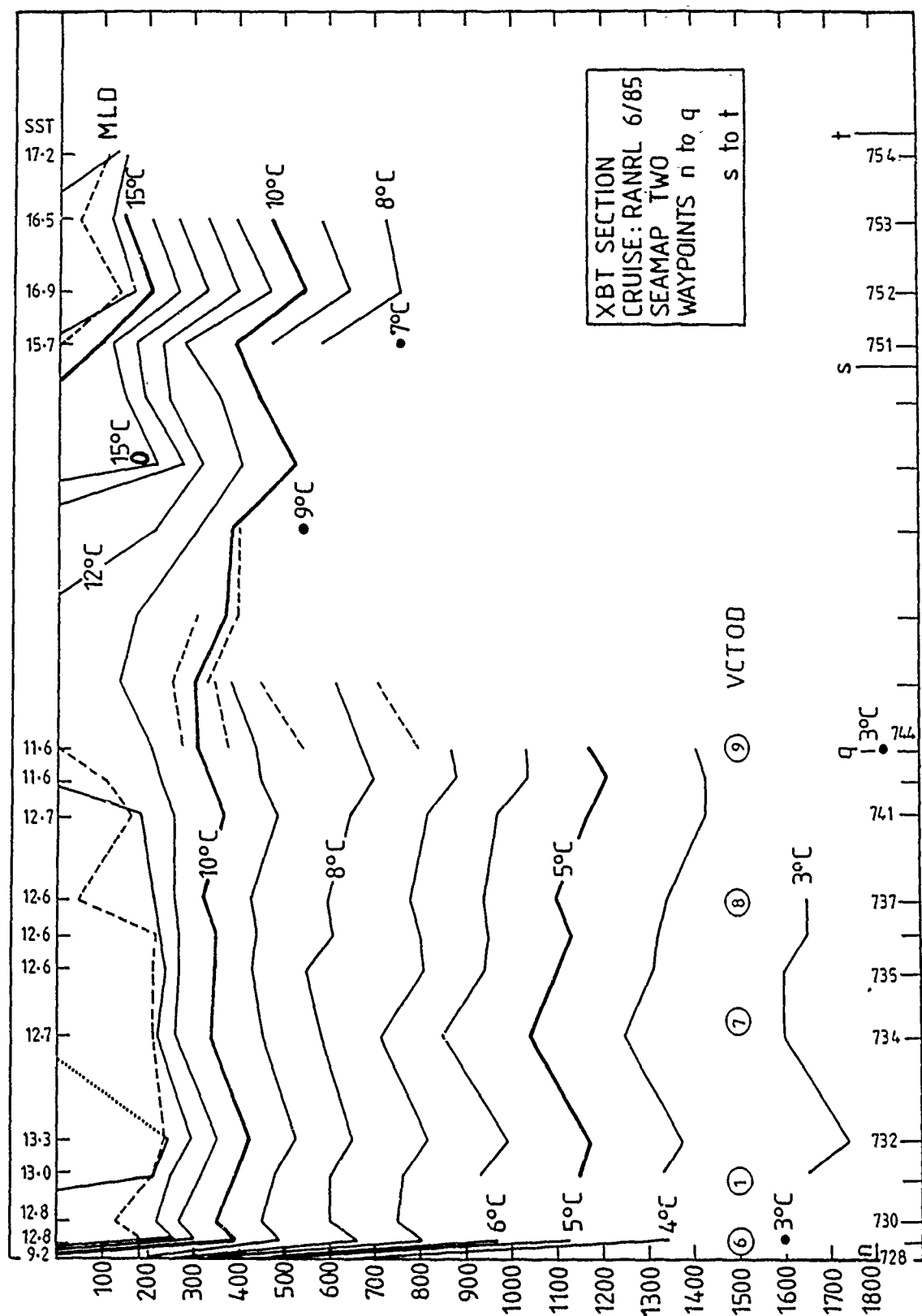


Figure 62. XBT temperature section from waypoint n to way-point t for 28 August to 3 September 1985. Winter survey SEAMAP 2 (RANRL 6/85) route B

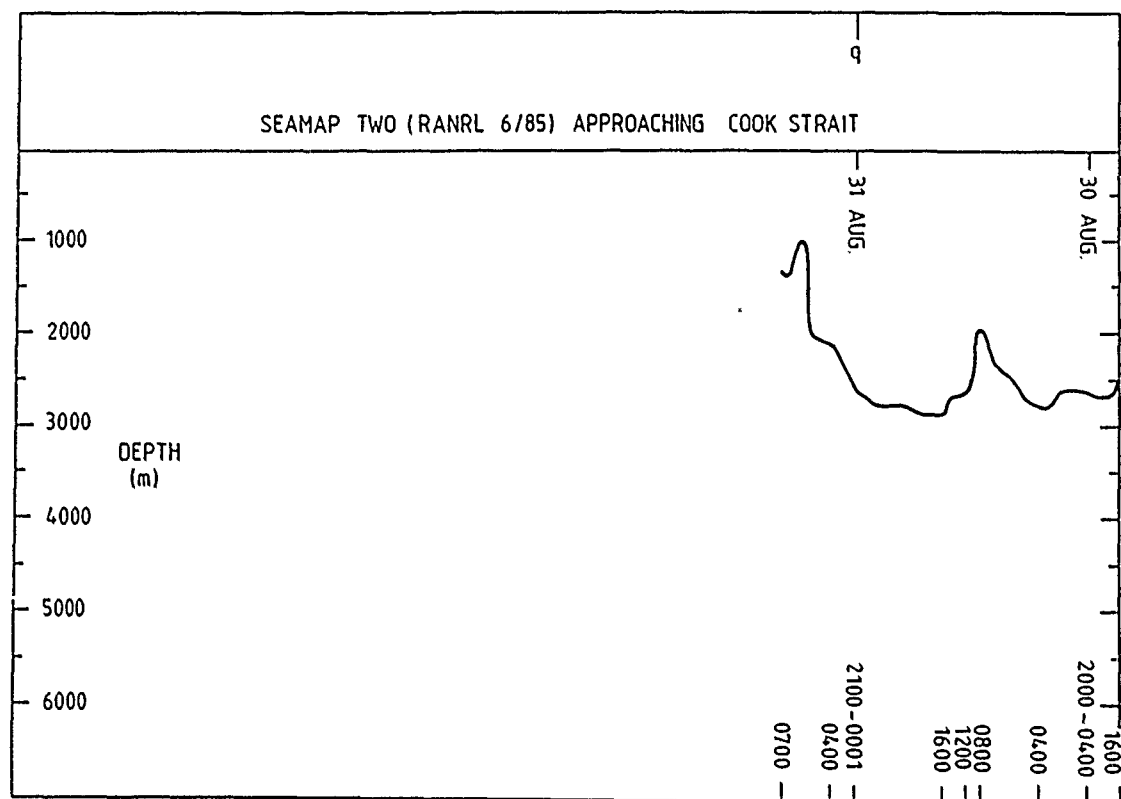


Figure 63. Bathymetry from VCTOD station 8 to station 9. Winter survey SEAMAP 2 (RANRL 6/85) route B

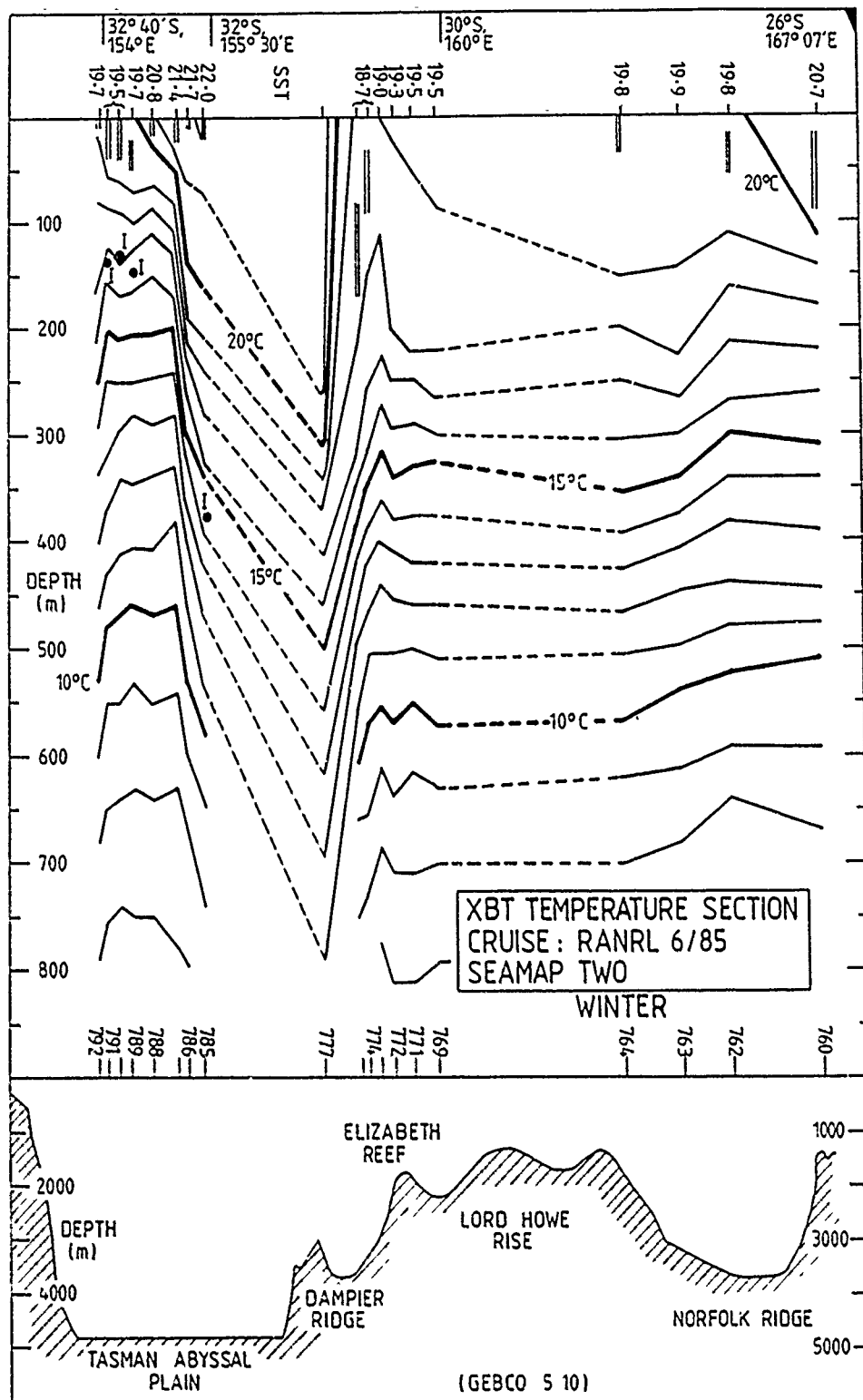


Figure 64(a). XBT temperature section from XBT 760 to XBT 792 for 17 to 19 September 1985. Winter survey SEAMAP 2 (RANRL 6/85) route B. See figure 51(b) for XBT positions

Figure 64(b). Bathymetry from XBT 760 to XBT 792. Winter survey SEAMAP 2 (RANRL 6/85) route B

### Norfolk Ridge to Australia (figure 64)

Warmer waters occur west of the Norfolk Ridge at the start of the section. Warm waters of the EAC are crossed between Lord Howe Rise and the coast, but a gap in data prevents comments on the structure, as it could be one or more meanders.

### *Nansen/VCTOD salinity, temperature, (and oxygen) sections*

#### Sydney to south of New Zealand

A planned Nansen section to bottom from Sydney to south of New Zealand was not able to be made because of rough weather. A deep section was completed at the southern end of the track across the Puysegur Trench. Salinity, temperature, and oxygen were sampled (figures 65, 66 and 67). The Nansen temperature section reveals little information not described in the XBT section, except across the Puysegur Trench. Antarctic Bottom Water (AABW) is seen on the western lip of the trench in temperature (and potential temperature). The path of the AABW is uncertain but it may be returning south after having journeyed round the Tasman Abyssal Plain. Potential temperature indicates that the AABW is spilling over the lip into the trench. Note that the Nansen bottle samples extend to 5780 m, beyond the limits of the diagrams.

The salinity in the Puysegur Trench is uniform to within limits of measurement between 34.720 to 34.724 PSU. The AABW appears to have been sampled on its eastern edge. AABW salinity at 4310 and 4510 m is 34.713 PSU. A local salinity maximum is seen about 2500 m above the Puysegur Trench (North Atlantic Deep Water eg Wyrski, 1962). Traces of it also appear at station 3, deeper than 2000 m. This water enters the Tasman Sea from the east, its presence here indicating deeper southward flow around the Snares Shelf and Campbell Plateau. The Antarctic Intermediate Water (AAIW) mass is seen as a salinity minimum about 1000 m, with lower salinity values in the south, where it has undergone a lesser amount of mixing on its northward journey. Highest salinities for this section are seen in the warm waters of the EAC. An oxygen minimum apparently extends along the section at 1600 m, which is partially interrupted by doming above the Atlantic Deep Water over the Puysegur Trench. The minimum marks the lower bounds of the AAIW. A local oxygen minimum occurs over the Puysegur Trench which is displaced on the west by slightly more oxygenated AABW water.

Text continued on page 119

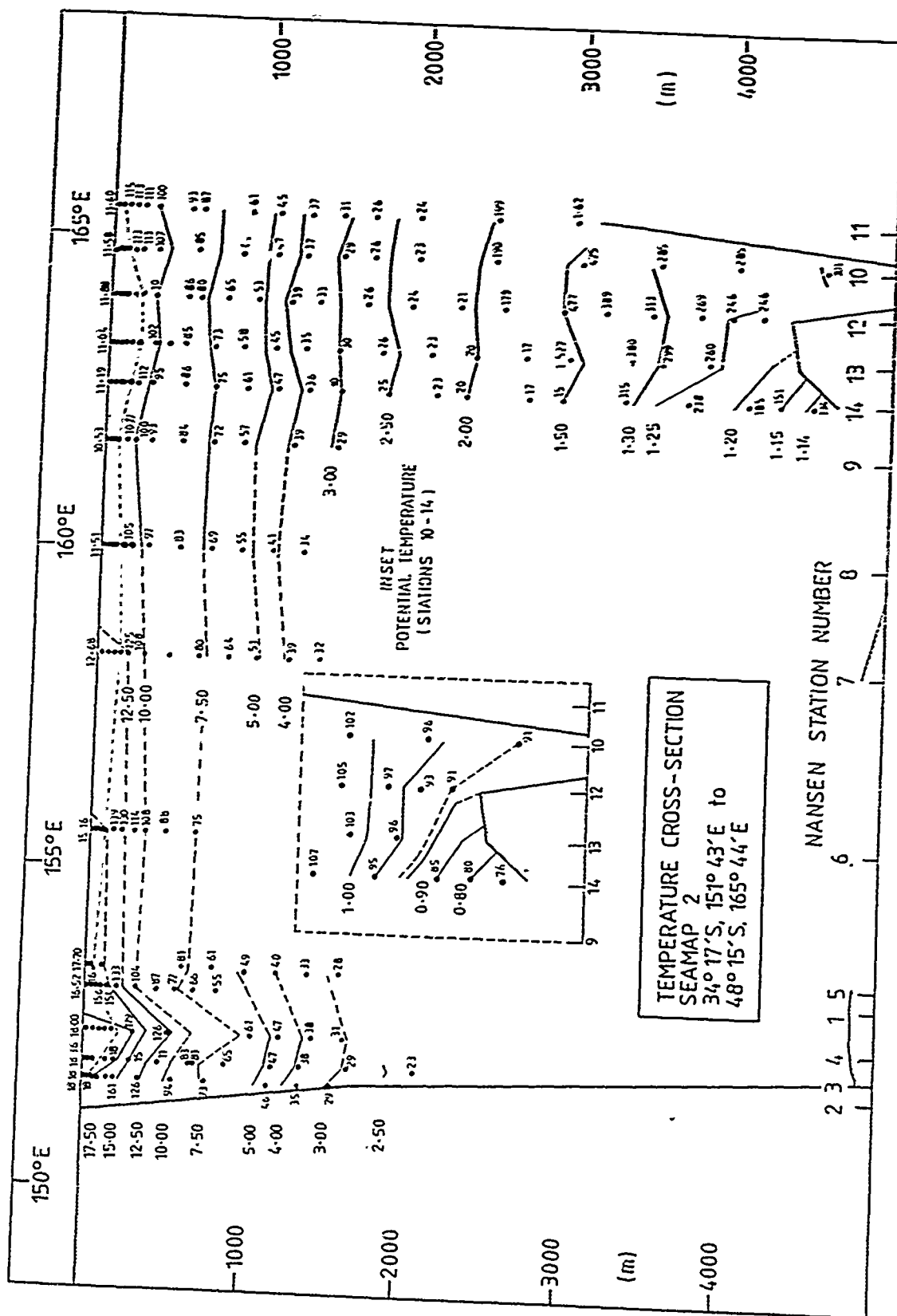


Figure 65. NANSEN temperature section from Nansen station 1 to station 11 for 1 to 11 August 1985. Winter survey SEAMAP 2 (RANRL 6/85) route B. (See figure 59 for more detailed bathymetry)

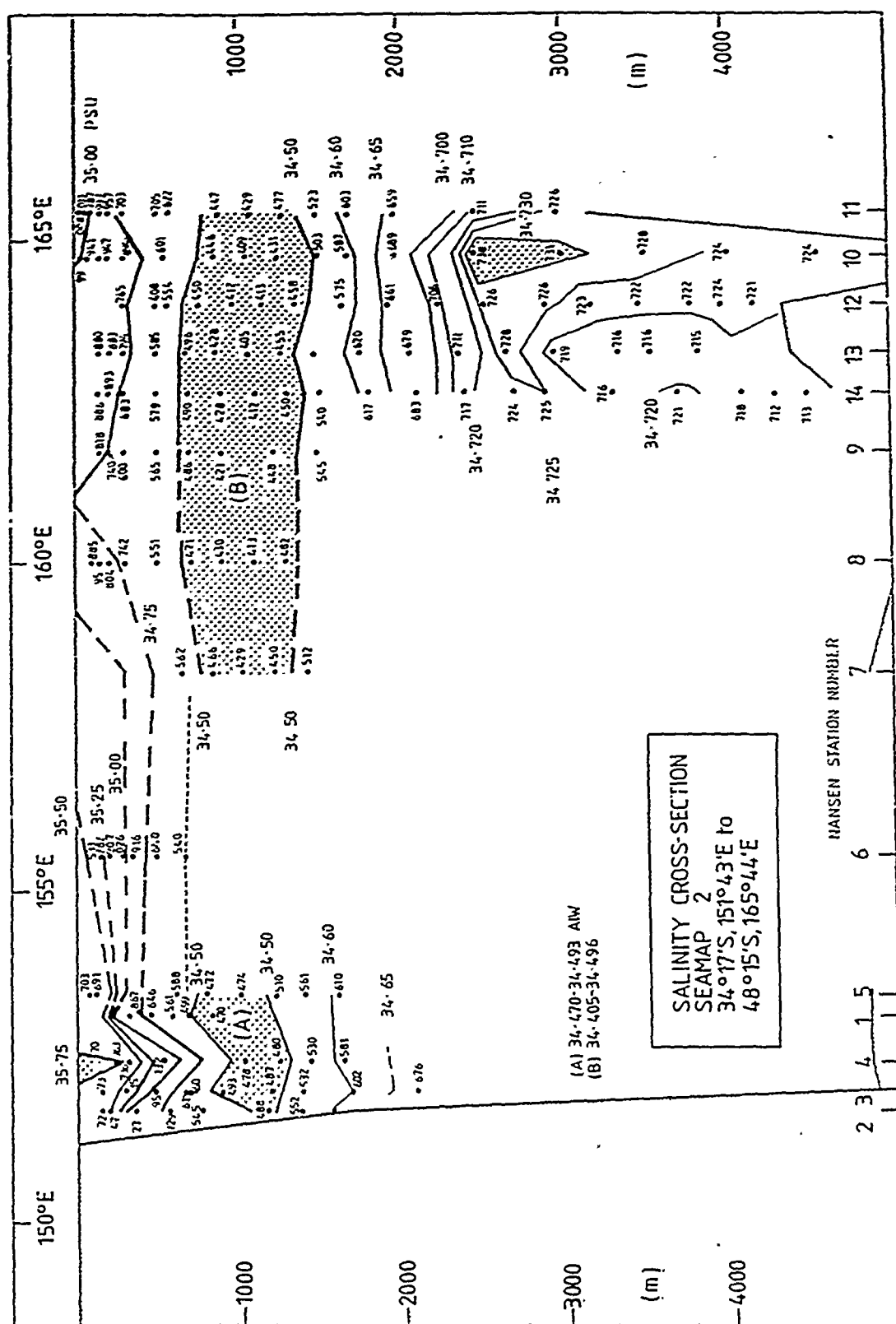


Figure 66. NANSEN salinity section from station 1 to station 11 for 1 to 11 August 1985. Winter survey SEAMAP 2 (RANRL 6/85) route B. (See figure 59 for more detailed bathymetry)



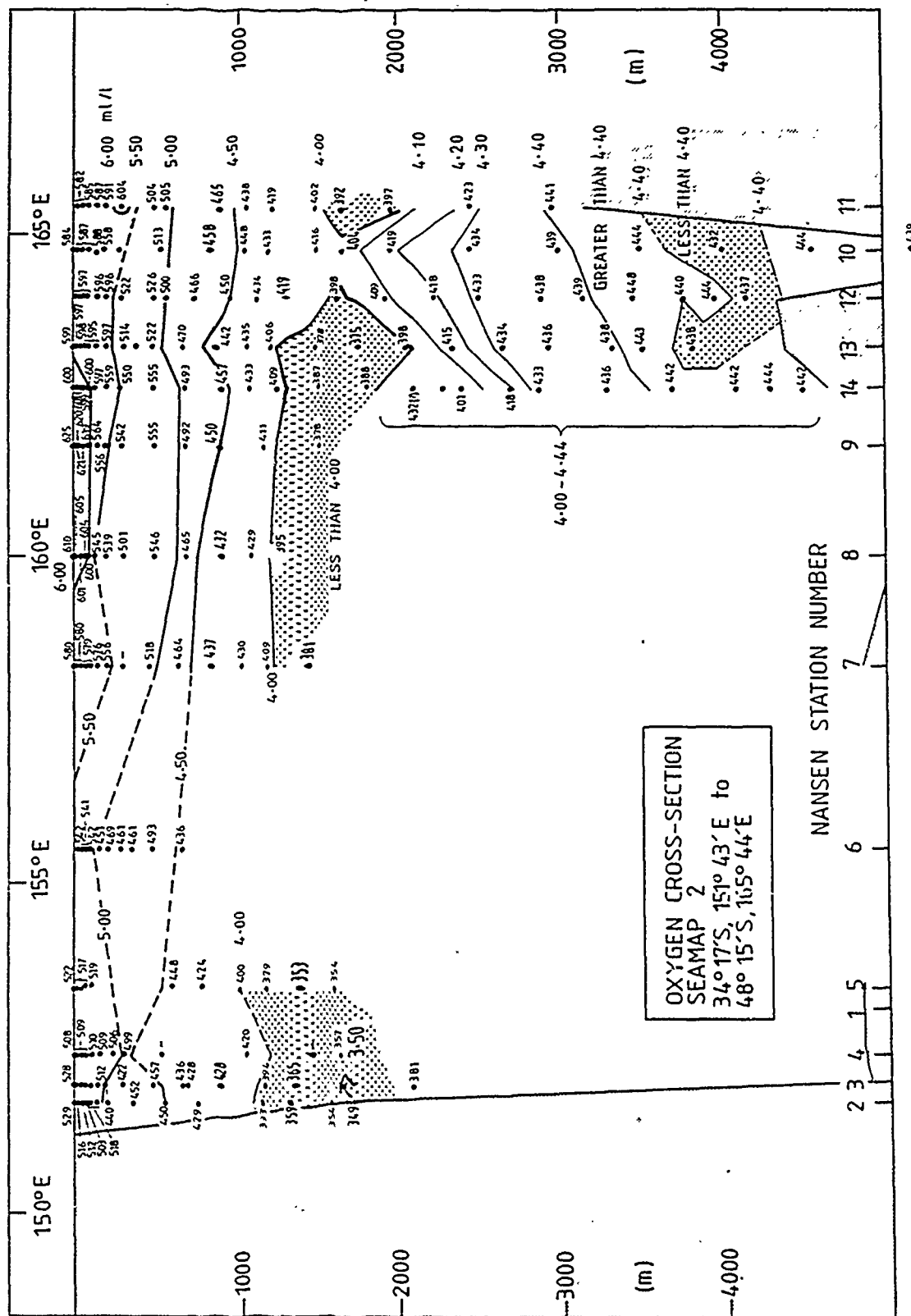


Figure 67. NANSEN oxygen section from Nansen station 1 to station 11 for 1 to 11 August 1985. Winter survey SEAMAP 2 (RANRL 6/85) route B. (See figure 59 for more detailed bathymetry)

### Dunedin to Auckland (and Kermadec Trench)

A temperature section has been drawn for the few scattered VCTOD stations by joining them with straight lines in an anti-clockwise direction (figure 68). Isotherms plunge from station 3 to 2 at the Subtropical Convergence and from 5 to 2 at depths greater than 1000 m. Isotherms of temperature lower than 2°C tend to follow the smoothed bottom contour from stations 6 to 9. The salinity section (figure 69) is more revealing. Iso-halines plunge between stations 3 and 2 from the surface in the Subtropical Convergence. A surface salinity maximum occurs between stations 6, 1 and 7, related to warmer northern waters. Two branches of the AAIW meet between stations 6 and 7, resulting in local maxima and minima. One branch comes from the north, and the other from around the Chatham Rise (Wyrski, 1962). There is a slight subsurface salinity maximum from stations 5 to 2, formed by water at higher latitudes than water contributing to the AAIW (eg Pickard and Emery, 1982).

### Nansen station data and profiles

Tables and profiles are given on pages 124 to 135 for the 14 stations taken in the Tasman Sea (See figure 51 for locations). Temperature-salinity curves (figure 71) show the AAIW salinity minimum values rising from south to north, and the deep recurvature due to AABW, with stations generally having maximum salinity values at the surface. Temperature-oxygen curves are shown in figure 72. Mixed layers observed in the stations range from 40 m (station 1) to 255 m (station 4). Because of the discrete sampling, mixed layer depths are underestimated. Corresponding sonic layer depths are 40 m and 308 m. Deepest values tend to occur in the south (stations 10 to 14) with all sonic layer depths over 200 m. A pronounced temperature inversion occurs in station 9 at 150 m (This may be Bass Strait Water?). Geostrophic currents will be discussed after the VCTOD profiles.

### VCTOD station data tables and profiles

Tables and profiles for 10 stations taken east of New Zealand are given on pages 136 to 143. See figure 51 for locations. Complex profiles are seen, with salinity and temperature perturbations occurring. In particular station 1 shows a pronounced intermediate level salinity maximum, rather than the simple smooth minimum usually seen. Temperature perturbations occur in the pen plots made on HMAS Cook for station 1 at 260 m, 340 m, 370 to 450 m, perhaps 820 m and 900 m, 1200 m, and maybe 1250 m with salinity maxima and minima from 800 and 900 to 1300 m. Temperature perturbations occur in station 2 at 320 m, 550 m, 570 m, 640 m, 800 m, and 900 to 1550 m, with very large perturbations between 1100 and 1200 m. Temperature perturbations occur in station 3 at 240 m, perhaps 1000 m and 1060 m, and 1200 m, with salinity

Text continued on page 122

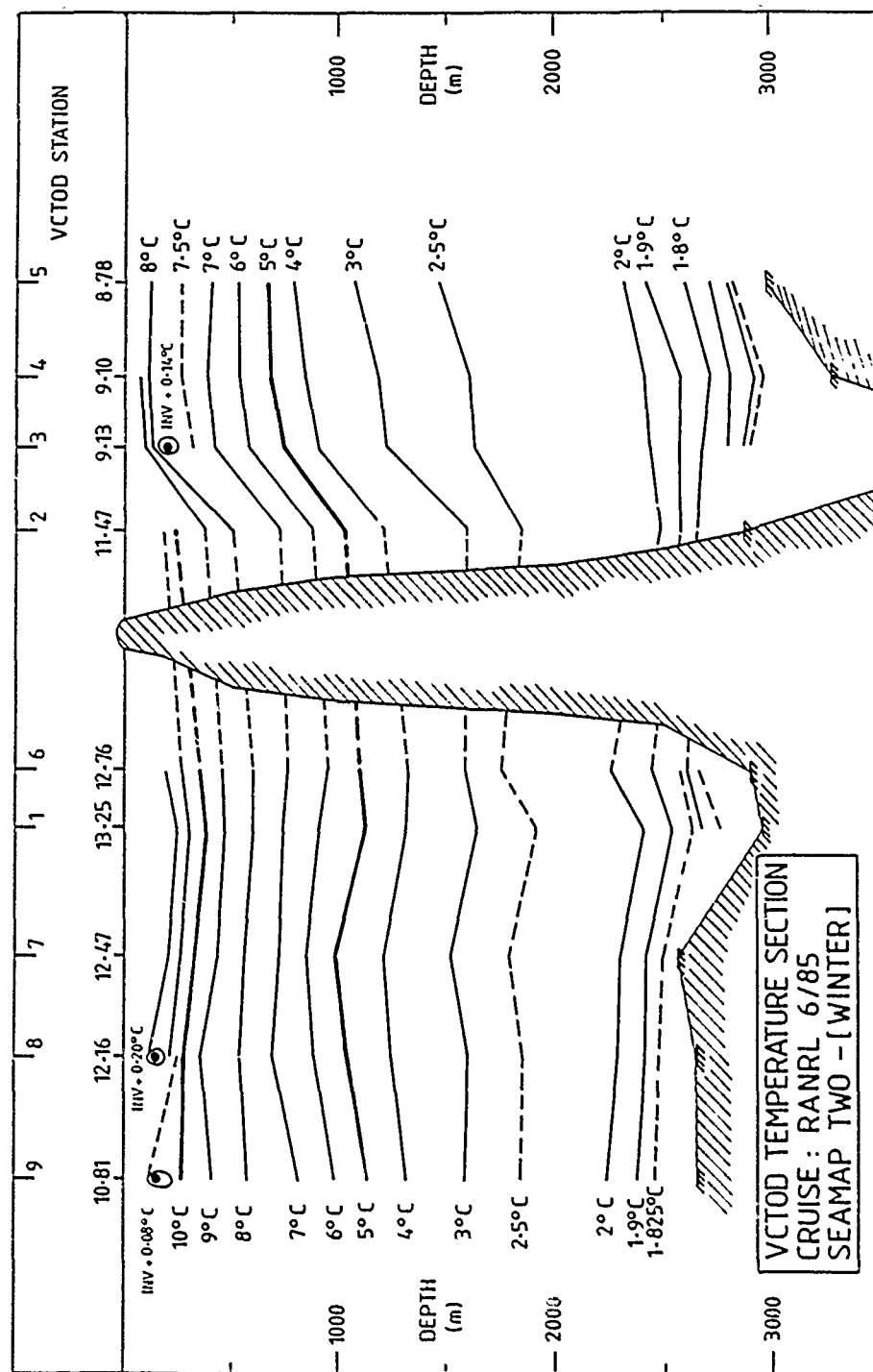


Figure 68. VCTOD temperature section from VCTOD stations 1 to 9 for 28 to 31 August 1985. The section is constructed with straight lines connecting the station pairs. See figure 61 for more detailed bathymetry. Winter survey SEAMAP 2 (RANRL 6/85) route B

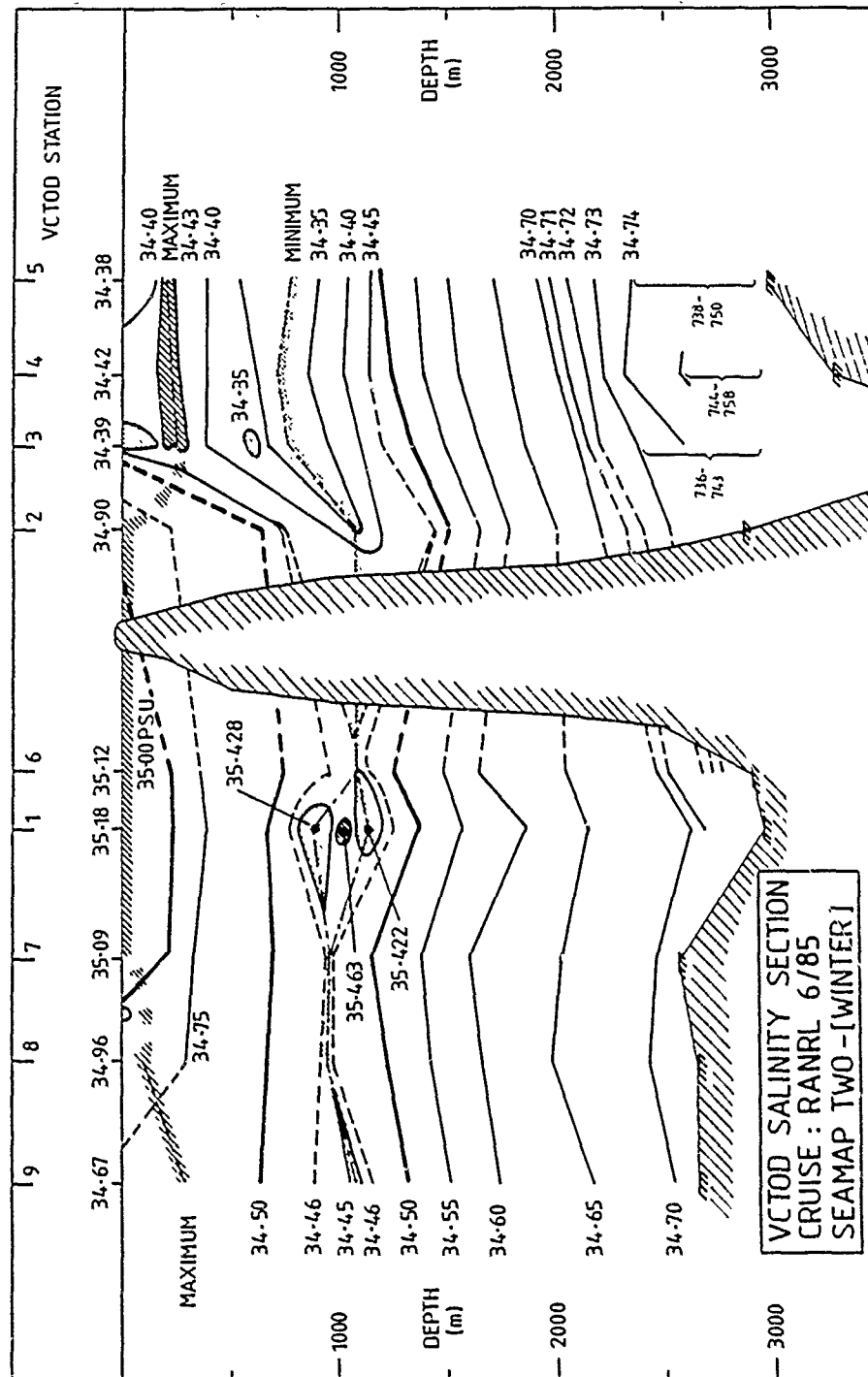


Figure 69. VCTOD salinity section from VCTOD stations 1 to 9 for 28 to 31 August 1985. The section is constructed with straight lines connecting the station pairs. See figure 61 for more detailed bathymetry. Winter survey SEAMAP 2 (RANRL 6/85) route B

reversals from 500 to 900 m. Temperature perturbations occur in station 4 at 200 m, and maybe 950 m, and 1070 m. Temperature perturbations occur in station 5 at 900 to 1000 m, 1080 m, 1200 m; in station 6 at 250 m, 300 to 400 m, perhaps 1480 m, in station 7 from 260 to 370 m; in station 8 at 160 m (large) to 200 m, 425 m, 520 m; in station 9 at 100 to 300 m, 425 m, 550 m, 700 m; in station 10 at 750 m, 950 m.

Many inversions remain unchecked. Smaller perturbations could be instrumental structure (eg Pingree, 1973) however the deeper perturbations can be explained in terms of meeting and mixing of various water masses, but this will not be done in this data report. See Hamilton (1990).

#### Currents

Surface components of geostrophic current calculated between Nansen station pairs are shown in figure 70. The currents are given with respect to an assumed depth of no motion of 600 m in the Tasman Sea, this being a depth attained at all Nansen stations. Highest values relative to 600 m are 37 cm/s in the second meander or eddy of the EAC. Away from the EAC, surface currents have only one-twentieth or less of this speed. This does not take into account the level of no motion changing across the Tasman or from north to south. Also some stations are very widely spaced, which prevents proper resolution of the current structure. However the direction of the geostrophic surface currents matches those which can be inferred from the patterns of the surface isotherms (figure 54).

East of New Zealand geostrophic currents are calculated relative to a 2000 dbar assumed level of no motion. A current of one third of a knot is calculated to the south between stations 2 and 3, the Subtropical Convergence, with one-eighth knot north between stations 6 and 1, and one-eighth knot south between 1 and 7. The latter currents correspond with a warm meander from the north (figure 54). Since isotherms generally run at right angles to the station pairs, these currents are expected to be equivalent to current vectors.

#### Additional data for the cruise period

During 1 to 31 July 1985 HMAS Brisbane transited from Sydney to northwest of New Zealand, and later from northeast of New Zealand along the east coast, and south of New Zealand, to the vicinity of Tasmania, deploying XBT at intervals. Not many of these were retained after digitising, and were presumably of low quality.

Text continued on page 124

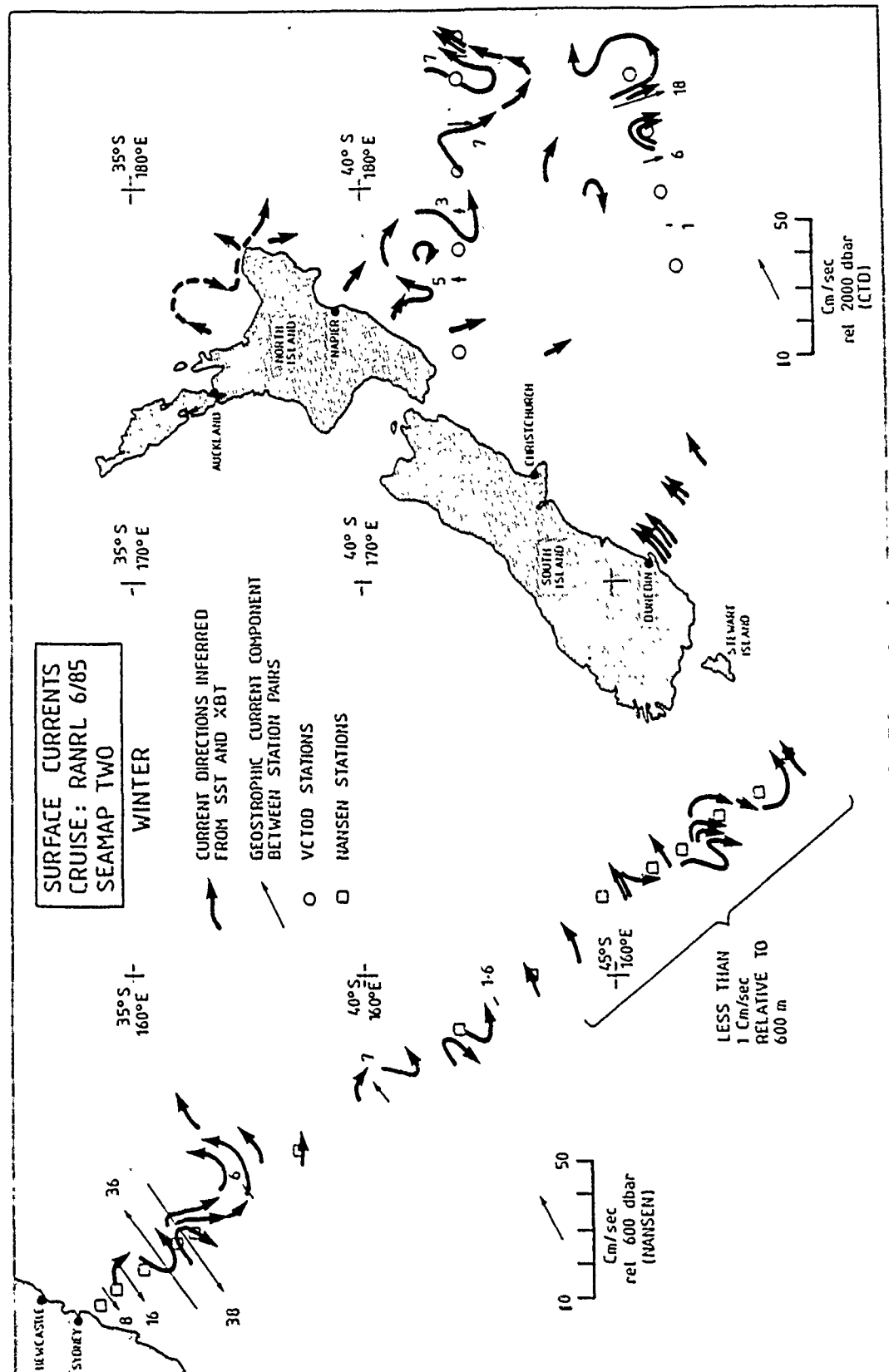


Figure 70. Surface current directions inferred from Nansen, VCTOD, XBT, and sea surface temperature data, 1 August to 2 September 1985. Winter survey SEAMAP 2 (RANRL 6/85) route B

LISTINGS AND PROFILES OF NANSEN DATA GATHERED ON WINTER SURVEY SEAMAP 2 (RANRL 6/85) ARE GIVEN ON FOLLOWING PAGES 125 TO 135.

Nansen stations 1 to 14 were occupied in the Tasman Sea from Sydney to south of New Zealand August 1985. (See figure 51(a) for Nansen station positions.)

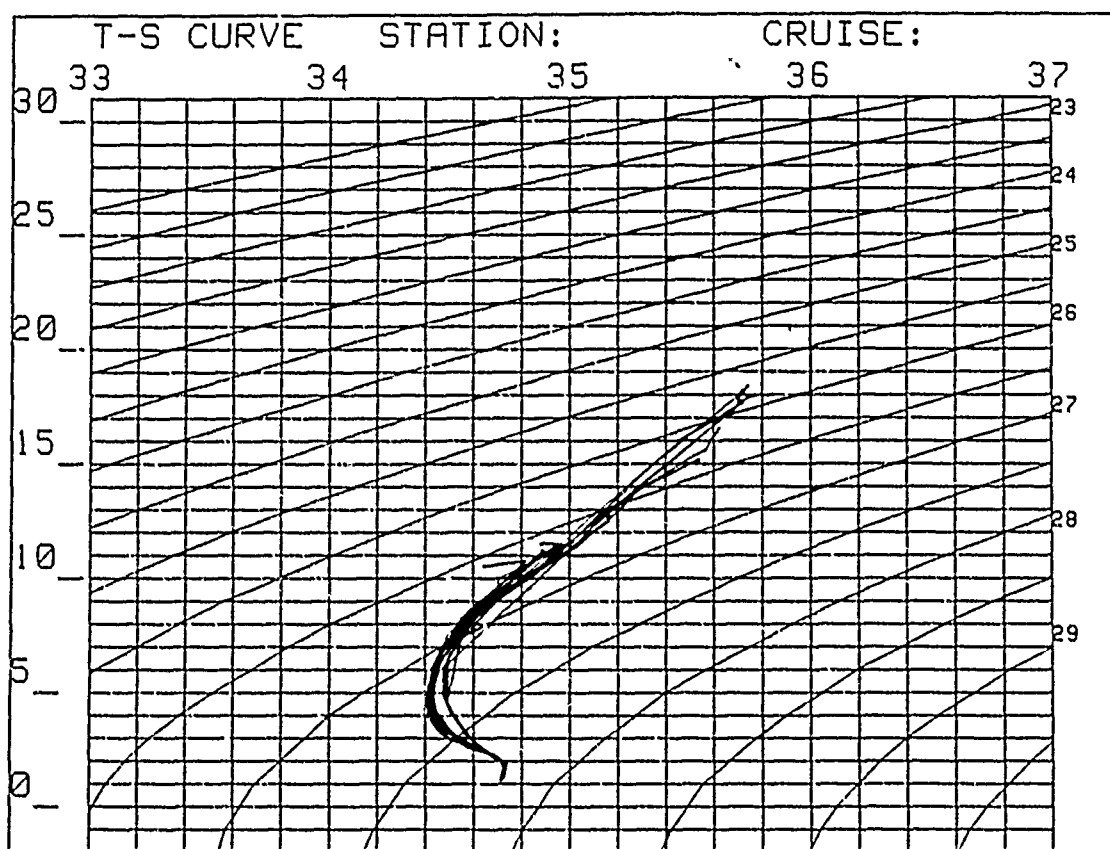


Figure 71. Temperature-Salinity curves for Nansen stations 1 to 14. Winter survey SEAMAP 2 (RANRL 6/85) route B

Text continued on page 136

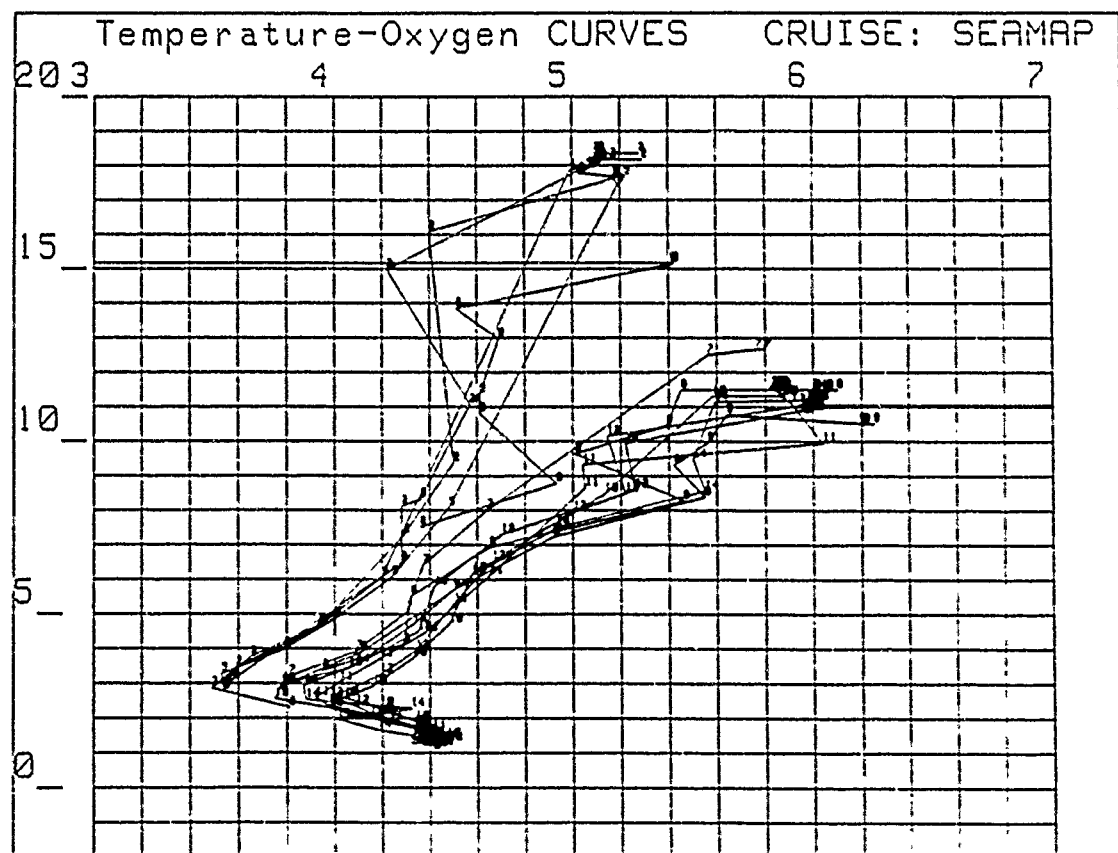
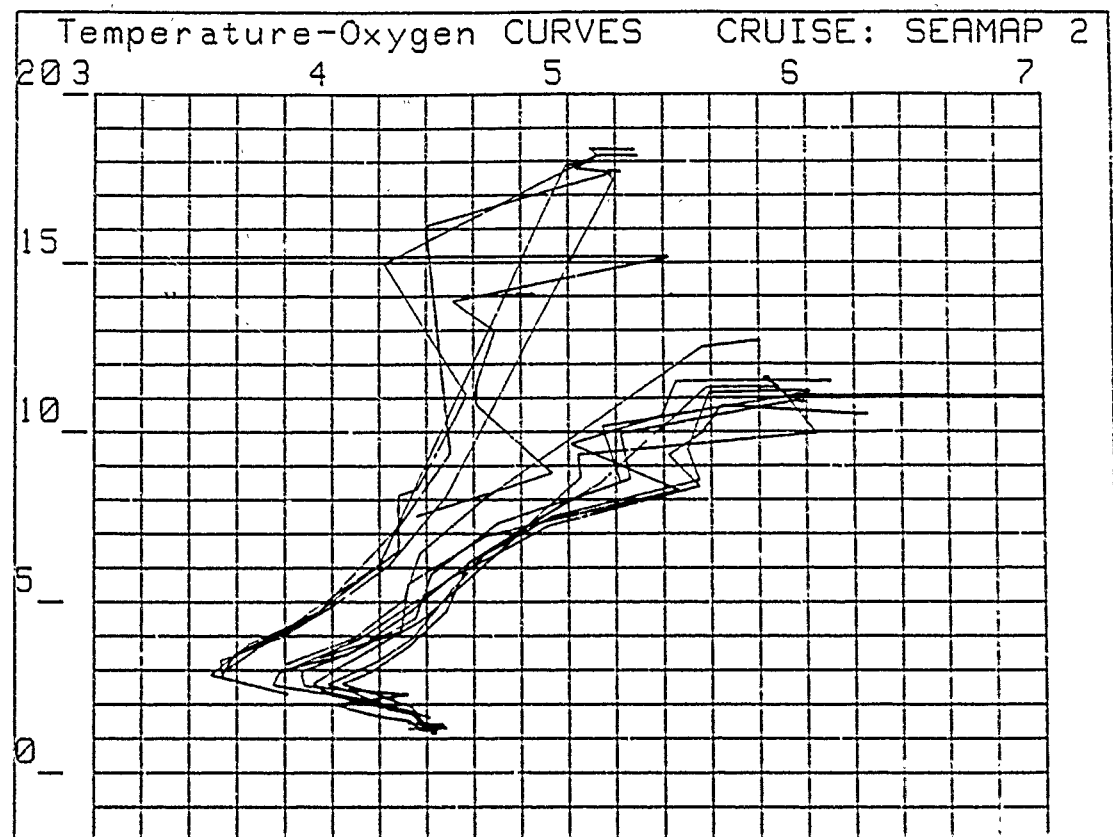
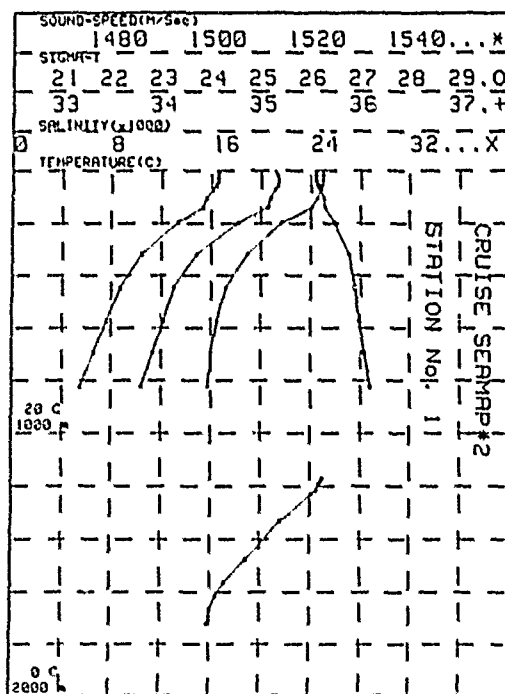


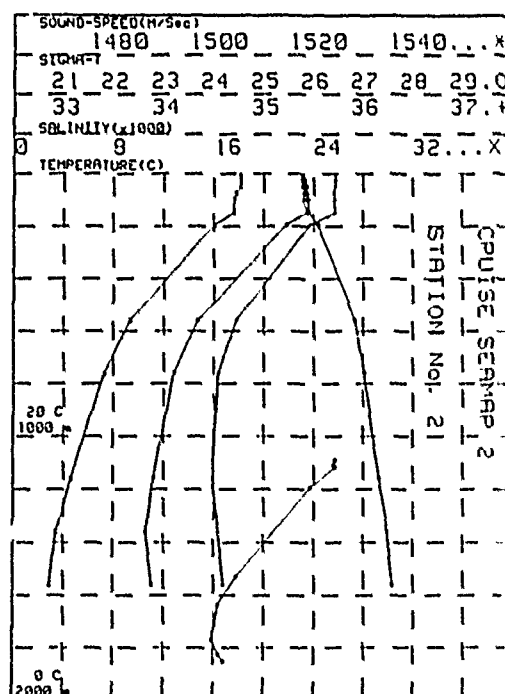
Figure 72. Temperature-Oxygen curves for Nansen stations 1 to 14. Winter survey SEAMAP 2 (RANRL 6/85) route B



STATION 1		38.578	153.056	SEAMAP#2			
DATE= 23/07/1988		TIME= 103500Y		DEPTH= 4847			
DEPTH	TEMP	SALINITY	SIGMA-T	A.S.V	CL	POT.TEMP	S.S
m	°C	Ppt		CL/T	M/L	°C	M/Sec
005	0	16.520	35.620	26.105	189.7	0.00	16.52
005	20	16.550	35.623	26.100	190.8	0.00	16.55
005	40	16.530	35.620	26.102	191.2	0.00	16.52
005	58	16.350	35.611	26.138	188.5	0.00	16.34
005	73	16.080	35.590	26.184	184.5	0.00	16.07
005	107	15.630	35.566	26.268	177.5	0.00	15.61
005	140	15.360	35.517	26.291	176.2	0.00	15.34
005	200	13.310	35.204	26.400	158.7	0.00	13.28
005	321	10.440	34.867	26.772	133.5	0.00	10.40
005	449	8.700	34.646	26.868	123.8	0.00	8.65
005	575	7.670	34.561	26.978	116.5	0.00	7.61
005	694	6.830	34.499	27.075	107.8	0.00	6.56
005	825	5.520	34.470	27.194	96.5	0.00	5.45
15L	0	16.52	35.62	26.105	189.7	0.00	16.52
15L	10	16.54	35.62	26.102	190.4	0.00	16.54
15L	25	16.55	35.62	26.101	190.9	0.00	16.54
15L	50	16.46	35.62	26.117	190.2	0.00	16.45
15L	75	16.05	35.59	26.191	183.9	0.00	16.04
15L	100	15.71	35.57	26.256	178.4	0.00	15.69
15L	150	14.99	35.46	26.327	173.1	0.00	14.97
15L	200	13.31	35.20	26.488	158.7	0.00	13.28
15L	250	11.96	35.05	26.626	146.4	0.00	11.95
15L	300	10.85	34.92	26.735	136.7	0.00	10.82
15L	400	9.28	34.71	26.847	127.2	0.00	9.24
15L	500	8.29	34.61	26.923	121.0	0.00	8.24
15L	600	7.45	34.55	26.987	114.8	0.00	7.39
15L	800	5.73	34.47	27.170	96.8	0.00	5.66

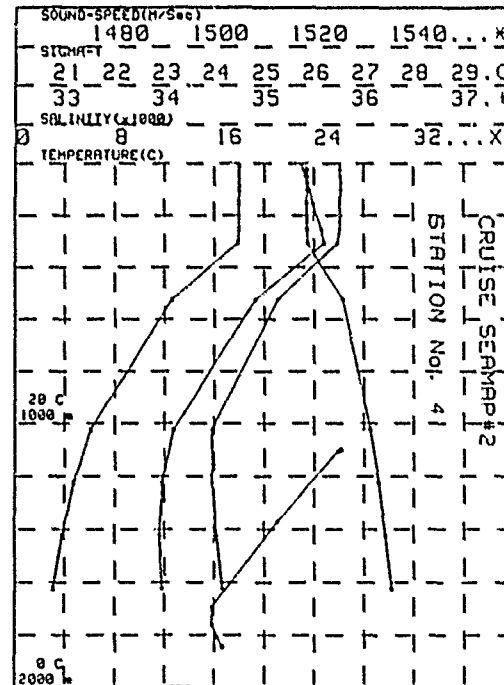
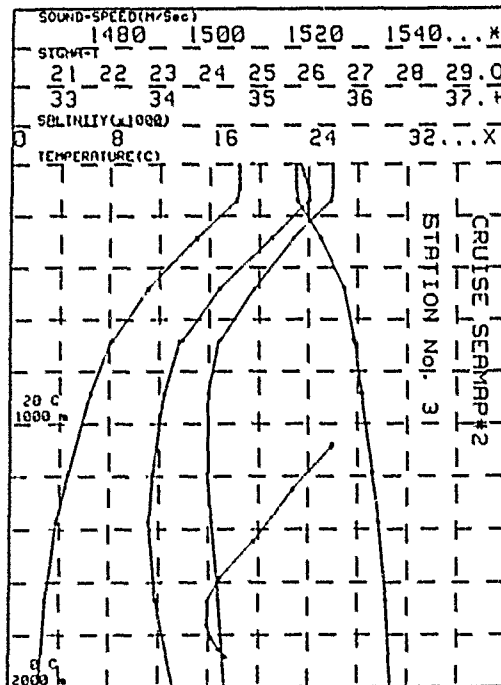


STATION 2		34.178	151.436	SEAMAP 2					
DATE= 01/08/89		TIME= 1310EST		DEPTH=	1700				
DEPTH	TEMP	SALINITY	SIGMA-T	A.S.V	CL/T	POT.TEMP	S.S		
m	°C	Ppt		CL/T	M/L	°C	M/Sec	Dyn.η	
005	0	16.180	35.718	25.778	220.7	5.28	16.18	1517.9	
005	25	16.190	35.719	25.777	221.7	5.18	16.19	1518.3	
005	50	16.170	35.718	25.779	222.3	5.12	16.16	1518.7	
005	75	17.780	35.667	25.861	215.4	5.03	17.77	1517.9	
005	100	17.670	35.715	25.902	212.3	5.18	17.65	1518.0	
005	148	17.650	35.719	25.910	213.1	5.18	17.62	1518.8	
005	195	16.090	35.467	26.087	197.5	4.40	16.06	1514.6	
005	560	9.380	34.729	26.845	130.7	4.50	9.32	1497.0	
005	980	7.290	34.545	27.020	115.0	4.29	7.21	1492.1	
005	1180	4.810	34.488	27.314	86.8	3.93	4.51	1487.9	
005	1368	3.450	34.552	27.485	69.3	3.59	3.35	1486.5	
005	1586	2.908	34.600	27.575	60.5	3.54	2.79	1487.6	
15L	0	16.18	35.72	25.778	220.7	5.28	16.18	1517.9	
15L	10	16.19	35.72	25.778	221.2	5.23	16.18	1518.1	
15L	25	16.19	35.72	25.777	221.7	5.18	16.19	1518.3	
15L	50	16.17	35.72	25.779	222.3	5.12	16.16	1518.7	
15L	75	17.78	35.70	25.861	215.4	5.03	17.77	1517.9	
15L	100	17.67	35.71	25.902	212.3	5.18	17.65	1518.0	
15L	150	17.56	35.71	25.918	212.4	5.14	17.55	1518.6	
15L	200	15.97	35.45	26.101	196.2	4.40	15.94	1514.2	
15L	250	14.84	35.32	26.227	184.3	4.42	14.80	1511.2	
15L	300	13.78	35.20	26.363	173.2	4.43	13.73	1508.3	
15L	400	11.86	34.99	26.582	154.0	4.46	11.81	1503.3	
15L	500	10.23	34.81	26.759	136.3	4.48	10.17	1499.1	
15L	600	8.92	34.66	26.861	127.5	4.46	8.86	1495.8	
15L	800	7.00	34.54	27.046	112.6	4.27	6.92	1491.6	
15L	1000	5.82	34.51	27.186	99.3	4.13	5.54	1489.4	
15L	1308	3.73	34.53	27.442	73.7	3.84	3.63	1484.7	
15L	1508	3.00	34.58	27.557	62.2	3.56	2.89	1487.0	



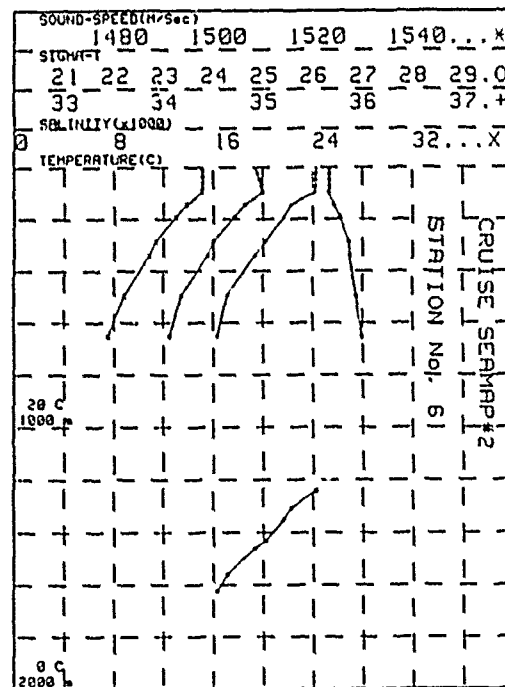
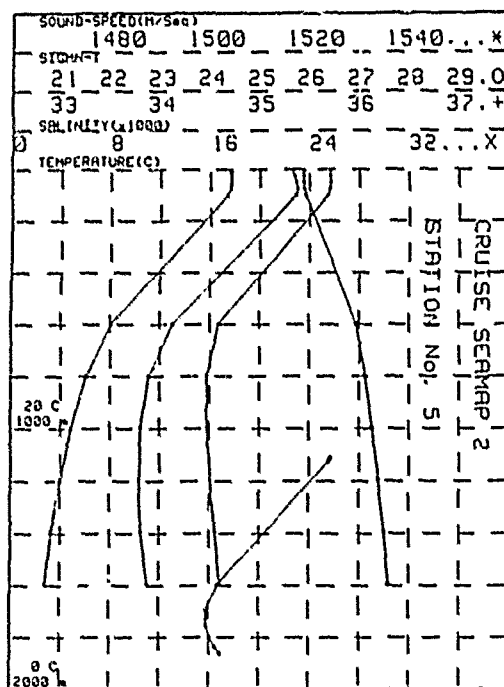
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m	°C	Ppt	CL/T	M/L	°C	M/Sec	M/Sec		
085	0	35.360	25.741	223.3	5.28	18.36	1518.4		
085	23	35.370	25.741	224.4	5.09	18.37	1518.8		
085	47	35.360	25.739	225.1	5.10	18.35	1519.2		
085	71	35.360	25.743	226.1	5.11	18.37	1519.6		
085	94	35.370	25.739	226.9	5.10	18.35	1520.0		
085	142	35.360	25.727	227.8	5.12	18.38	1520.2		
085	287	35.360	25.747	228.8	4.72	14.84	1512.5		
085	482	35.360	25.747	229.0	4.57	11.01	1502.1		
085	680	35.360	25.747	229.0	4.36	8.25	1494.8		
085	887	35.360	25.747	229.0	4.28	8.05	1494.2		
085	1187	35.360	25.747	229.0	4.28	8.05	1494.2		
085	1373	35.360	25.747	229.0	4.28	8.05	1494.2		
085	1670	35.360	25.747	229.0	4.28	8.05	1494.2		
085	2061	35.360	25.747	229.0	4.28	8.05	1494.2		
ISL	0	35.36	25.74	223.3	5.28	18.36	1518.4	0.000	
ISL	10	35.37	25.74	223.3	5.17	18.36	1518.4	.022	
ISL	25	35.37	25.74	224.4	5.09	18.36	1518.8	.058	
ISL	50	35.36	25.74	225.2	5.10	18.36	1519.2	.112	
ISL	75	35.36	25.74	226.1	5.11	18.37	1519.6	.166	
ISL	100	35.37	25.74	226.9	5.11	18.38	1520.0	.220	
ISL	150	35.36	25.72	227.8	5.04	17.97	1519.8	.338	
ISL	200	35.37	25.74	228.8	4.84	16.84	1517.1	.446	
ISL	250	35.37	25.74	229.0	4.78	15.73	1514.6	.547	
ISL	300	35.37	25.74	229.0	4.78	14.64	1511.7	.641	
ISL	400	35.37	25.74	229.0	4.48	12.51	1506.1	.812	
ISL	500	35.37	25.74	229.0	4.35	10.99	1501.4	.961	
ISL	600	35.37	25.74	229.0	4.44	10.03	1497.8	1.097	
ISL	800	35.37	25.74	229.0	4.28	7.08	1492.2	1.342	
ISL	1000	35.37	25.74	229.0	4.17	5.69	1490.0	1.559	
ISL	1300	35.37	25.74	229.0	4.17	3.98	1486.1	1.832	
ISL	1500	35.37	25.74	229.0	4.17	3.21	1480.3	1.979	
ISL	2000	35.37	25.74	229.0	4.17	2.21	1482.8	2.219	

STATION 4 35.108 152.27E SEAMAP#2									
DATE= 02/08/1985 TIME= 0025GMT DEPTH= 4834									
DEPTH	TEMP	SALINITY	SIGMA-T	A.S.V	OX	POT. TEMP	S.S	DYN.	
m	°C	Ppt	CL/T	M/L	°C	M/Sec	M/Sec		
085	0	35.787	25.861	212.9	5.08	18.00	1517.4		
085	28	35.784	25.861	213.8	5.08	17.99	1517.8		
085	51	35.787	25.863	214.4	5.08	17.98	1518.2		
085	77	35.774	25.868	214.8	5.08	17.98	1518.7		
085	103	35.770	25.868	215.8	5.10	17.97	1519.1		
085	154	35.785	25.862	218.0	5.09	17.96	1519.9		
085	255	35.763	25.862	221.3	5.04	17.94	1521.5		
085	308	35.736	25.868	222.4	4.99	17.82	1522.1		
085	525	35.132	26.581	158.0	0.00	12.50	1508.2		
085	1025	34.478	27.126	106.5	4.20	8.01	1491.8		
085	1225	34.480	27.293	89.9	0.00	4.64	1486.5		
085	1425	34.530	27.431	78.1	0.00	3.71	1489.1		
085	1625	34.581	27.543	64.5	3.57	.98	1489.4		
ISL	0	35.77	25.861	212.9	5.08	18.00	1517.4	0.000	
ISL	10	35.77	25.861	213.3	5.09	17.99	1517.8	.021	
ISL	25	35.76	25.861	213.7	5.09	17.99	1517.8	.053	
ISL	50	35.77	25.863	214.4	5.09	17.98	1518.2	.107	
ISL	75	35.77	25.868	214.7	5.09	17.98	1518.6	.160	
ISL	100	35.77	25.868	215.8	5.10	17.97	1519.0	.214	
ISL	150	35.77	25.862	217.9	5.09	17.96	1519.8	.323	
ISL	200	35.76	25.862	219.7	5.08	17.95	1520.8	.432	
ISL	250	35.76	25.863	221.2	5.06	17.94	1521.5	.542	
ISL	300	35.74	25.864	222.2	5.03	17.96	1522.0	.653	
ISL	400	35.48	26.506	182.0	2.37	15.38	1515.7	.863	
ISL	500	35.19	26.516	184.1	.36	13.03	1509.8	1.043	
ISL	600	34.97	26.875	149.3	.83	11.25	1504.8	1.199	
ISL	800	34.66	26.904	127.9	2.31	8.40	1497.2	1.479	
ISL	1000	34.48	27.103	108.8	3.99	6.24	1492.2	1.718	
ISL	1300	34.50	27.348	84.5	0.00	4.27	1489.3	2.007	
ISL	1500	34.55	27.478	71.5	.92	3.41	1489.2	2.183	



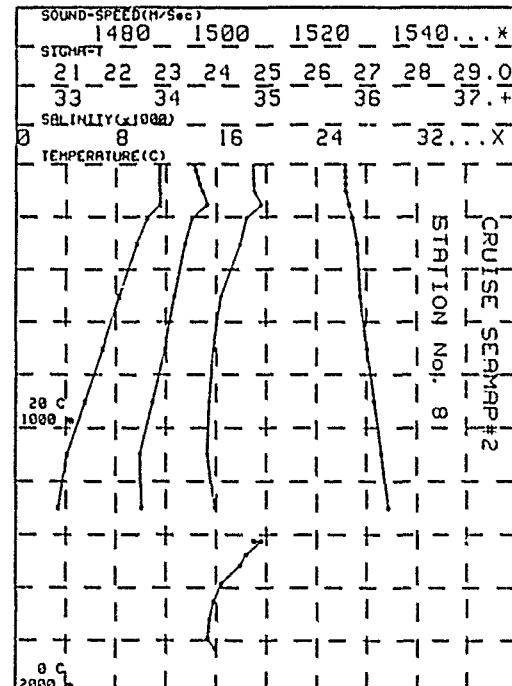
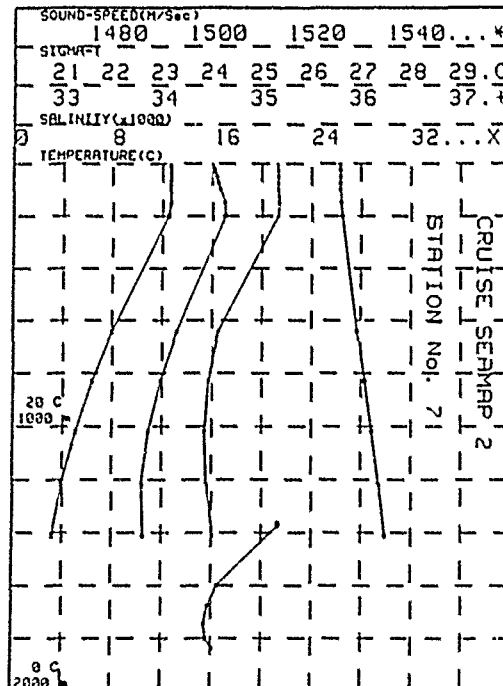
STATION 5 36.165 153.27E SEAMAP 2									
DATE: 02/08/85 TIME: 1040GMT DEPTH: 4827									
DEPTH	TEMP	SALINITY	SIGMA-T	A.S.V	OX	POT. TEMP	S.S	Dym.m	
m	°C	Ppt	CL/T	M/L	°C	M/Sec			
0BS 0	17.700	35.708	25.889	210.2	5.22	17.70	1516.5		
0BS 25	17.730	35.709	25.883	211.8	5.17	17.73	1517.0		
0BS 50	17.710	35.714	25.882	211.7	5.17	17.70	1517.3		
0BS 75	17.670	35.703	25.892	212.4	5.17	17.66	1517.6		
0BS 100	17.450	35.681	25.937	208.8	5.19	17.43	1517.4		
0BS 800	8.080	34.588	26.936	121.1	4.48	8.02	1482.8		
0BS 800	8.080	34.472	27.125	103.6	4.24	8.01	1487.9		
0BS 997	4.870	34.474	27.273	89.7	4.00	4.79	1486.3		
0BS 1195	4.000	34.510	27.396	77.9	3.79	3.81	1486.8		
0BS 1395	3.270	34.581	27.510	64.7	3.53	3.17	1486.3		
0BS 1595	2.780	34.610	27.584	58.5	3.54	2.87	1487.7		
ISL 0	17.70	35.71	25.886	210.2	5.22	17.70	1516.5	0.000	
ISL 10	17.72	35.71	25.885	210.9	5.19	17.72	1516.7	.021	
ISL 25	17.73	35.71	25.883	211.6	5.17	17.73	1517.0	.053	
ISL 50	17.71	35.71	25.882	211.7	5.17	17.70	1517.3	.106	
ISL 75	17.67	35.70	25.892	212.4	5.17	17.66	1517.6	.158	
ISL 100	17.45	35.68	25.937	208.8	5.19	17.43	1517.4	.211	
ISL 150	16.23	35.53	26.072	197.3	5.11	16.21	1514.0	.314	
ISL 200	15.08	35.38	26.196	186.3	5.04	15.05	1510.9	.411	
ISL 250	13.98	35.24	26.316	176.0	4.96	13.95	1506.0	.505	
ISL 300	12.85	35.11	26.429	166.3	4.89	12.91	1501.2	.594	
ISL 400	11.08	34.88	26.630	148.7	4.75	11.03	1500.2	.759	
ISL 500	9.45	34.72	26.799	133.6	4.61	9.40	1496.0	.907	
ISL 600	8.08	34.59	26.838	121.1	4.48	8.02	1492.8	1.036	
ISL 800	6.08	34.47	27.125	103.6	4.24	6.01	1487.9	1.281	
ISL 1000	4.86	34.47	27.275	89.5	4.00	4.77	1486.3	1.454	
ISL 1300	3.59	34.54	27.458	71.7	3.82	3.48	1486.1	1.696	
ISL 1500	2.98	34.59	27.557	62.0	3.54	2.87	1486.8	1.830	

STATION 6 36.355 155.30E SEAMAP#2									
DATE: 05/06/1986 TIME: 2135GMT DEPTH: 9999									
DEPTH	TEMP	SALINITY	SIGMA-T	A.S.V	OX	POT. TEMP	S.S	Dym.m	
m	°C	Ppt	CL/T	M/L	°C	M/Sec			
0BS 0	15.180	35.530	26.353	166.2	0.00	15.18	1506.6		
0BS 25	15.180	35.537	26.347	167.5	5.42	15.18	1506.0		
0BS 48	15.170	35.536	26.348	168.1	5.41	15.16	1509.4		
0BS 74	15.160	35.533	26.348	168.8	5.41	15.15	1509.8		
0BS 97	15.180	35.532	26.346	168.8	5.42	15.15	1510.1		
0BS 148	13.850	35.282	26.457	162.2	4.51	13.83	1506.4		
0BS 183	12.980	35.207	26.558	151.8	4.48	12.95	1504.2		
0BS 288	11.370	35.028	26.728	137.4	4.61	11.33	1500.0		
0BS 348	10.618	34.916	26.745	136.8	4.61	10.77	1498.8		
0BS 437	8.790	34.640	26.870	126.5	4.93	8.74	1493.6		
0BS 654	7.520	34.540	26.983	117.1	4.56	7.45	1491.2		
ISL 0	15.18	35.54	26.353	166.2	0.00	15.18	1506.6	0.000	
ISL 10	15.17	35.54	26.350	166.8	2.83	15.17	1506.8	.017	
ISL 25	15.18	35.54	26.347	167.5	5.42	15.18	1509.0	.042	
ISL 50	15.17	35.54	26.348	168.1	5.41	15.16	1509.4	.064	
ISL 75	15.16	35.53	26.348	168.8	5.42	15.15	1509.8	.128	
ISL 100	15.07	35.51	26.352	169.2	5.33	15.05	1509.9	.186	
ISL 150	13.77	35.28	26.449	161.3	4.53	13.75	1506.2	.251	
ISL 200	12.83	35.19	26.577	150.2	4.68	12.81	1503.8	.329	
ISL 250	11.82	35.10	26.682	141.1	4.63	11.80	1501.4	.402	
ISL 300	11.25	35.00	26.731	137.4	4.61	11.21	1499.8	.472	
ISL 400	9.96	34.79	26.793	132.8	4.83	9.92	1496.5	.608	
ISL 500	8.76	34.54	26.872	126.3	4.93	8.70	1493.5	.737	
ISL 600	7.87	34.53	26.946	120.2	4.68	7.81	1491.7	.881	



STATION 7 41.30S 158.30E SEAMAP 2 DEPTH= 4800									
DATE= 08/08/85 TIME= 0244GMT									
DEPTH	TEMP	SALINITY	SIGMA-T	A.S.V	OX	POT. TEMP	S.S	Dyn. #	
m	°C	Ppt	CL/T	ML/L	°C	N/Sec			
OBS 0	12.000	35.159	26.581	144.6	5.80	12.00	1500.0		
OBS 25	12.090	35.185	26.583	145.0	5.80	12.09	1500.4		
OBS 50	12.690	35.189	26.586	145.3	5.80	12.68	1500.9		
OBS 75	12.680	35.187	26.587	145.8	5.79	12.67	1501.2		
OBS 100	12.680	35.185	26.585	146.7	5.79	12.67	1501.6		
OBS 150	12.670	35.171	26.592	147.4	5.78	12.65	1502.4		
OBS 200	12.500	35.184	26.625	148.0	5.58	12.47	1502.7		
OBS 844	8.010	34.582	26.929	122.7	4.64	7.94	1495.0		
OBS 831	6.410	34.498	27.078	109.1	4.37	6.33	1489.7		
OBS 1020	5.050	34.429	27.217	95.8	4.30	4.98	1487.3		
OBS 1217	3.930	34.450	27.358	81.6	4.09	3.84	1486.0		
OBS 1413	3.200	34.512	27.477	69.6	3.81	3.10	1486.3		
ISL 0	12.68	35.18	26.581	144.6	5.80	12.68	1500.0	0.000	
ISL 10	12.69	35.18	26.582	144.7	5.80	12.68	1500.2	.014	
ISL 25	12.68	35.17	26.583	145.0	5.80	12.68	1500.4	.036	
ISL 50	12.69	35.17	26.586	145.3	5.80	12.68	1500.9	.072	
ISL 75	12.68	35.17	26.587	145.8	5.79	12.67	1501.2	.109	
ISL 100	12.68	35.17	26.585	146.7	5.79	12.67	1501.6	.145	
ISL 150	12.67	35.17	26.592	147.4	5.78	12.65	1502.4	.219	
ISL 200	12.50	35.18	26.620	148.0	5.58	12.47	1502.7	.292	
ISL 250	11.95	35.07	26.652	144.0	5.44	11.91	1501.4	.365	
ISL 300	11.40	34.98	26.684	141.9	5.32	11.37	1500.3	.438	
ISL 400	10.38	34.83	26.751	137.1	5.10	10.31	1498.0	.574	
ISL 500	9.38	34.70	26.821	131.7	4.90	9.30	1495.8	.707	
ISL 600	8.41	34.60	26.895	125.6	4.71	8.35	1493.8	.834	
ISL 800	6.48	34.48	27.054	111.3	4.40	6.58	1490.2	1.071	
ISL 1000	5.18	34.43	27.202	97.0	4.21	5.10	1487.5	1.280	
ISL 1300	3.57	34.47	27.409	78.3	3.98	3.48	1486.1	1.539	

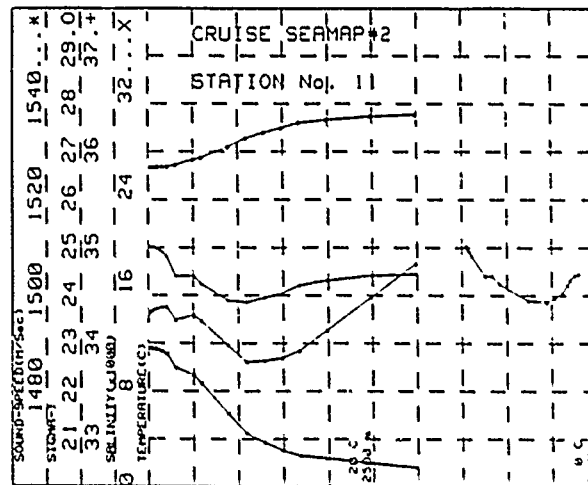
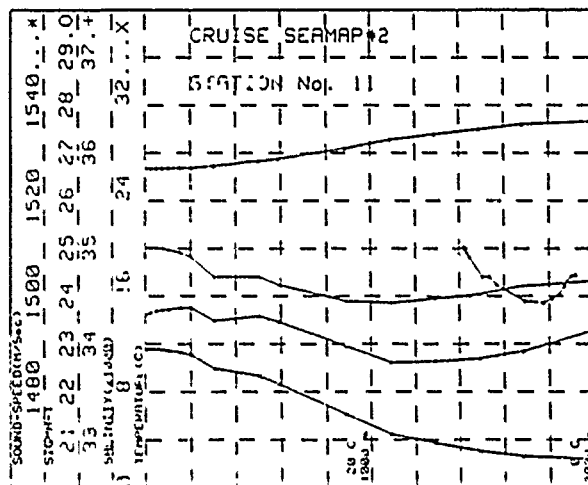
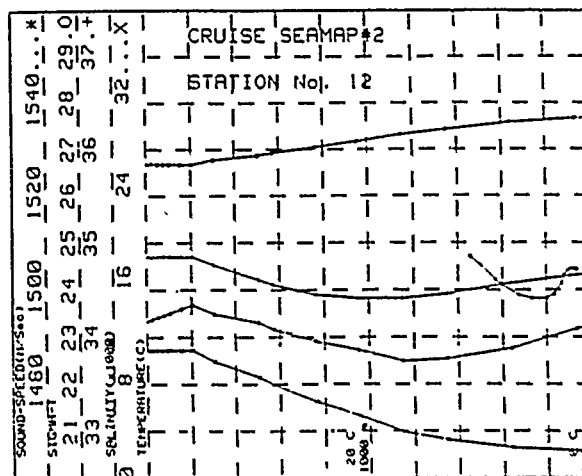
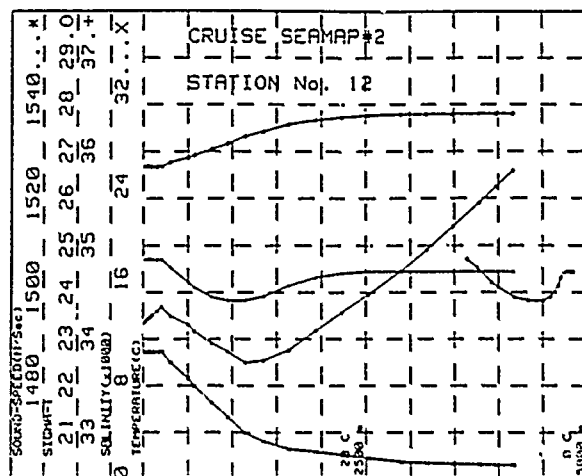
STATION 8 43.18S 159.50E SEAMAP#2 DEPTH= 5020									
DATE= 08/08/1985 TIME= 0248GMT									
DEPTH	TEMP	SALINITY	SIGMA-T	A.S.V	OX	POT. TEMP	S.S	Dyn. #	
m	°C	Ppt	CL/T	ML/L	°C	N/Sec			
OBS 0	11.510	34.874	26.584	144.2	6.10	11.51	1495.6		
OBS 28	11.500	34.875	26.587	144.8	6.08	11.50	1496.0		
OBS 92	11.490	34.878	26.581	144.8	6.01	11.48	1496.4		
OBS 77	11.400	34.805	26.596	144.9	6.04	11.47	1496.8		
OBS 105	11.510	34.882	26.593	145.9	6.00	11.50	1497.3		
OBS 155	11.490	34.852	26.649	141.8	5.45	11.47	1498.2		
OBS 205	10.470	34.804	26.718	138.1	5.39	10.45	1495.2		
OBS 305	9.850	34.742	26.810	129.1	5.01	9.82	1493.8		
OBS 505	8.280	34.551	26.879	125.3	5.48	8.23	1491.7		
OBS 705	6.940	34.471	27.011	114.5	4.85	6.87	1489.7		
OBS 904	5.520	34.430	27.182	100.4	4.32	5.44	1487.3		
OBS 1100	4.130	34.413	27.308	85.8	4.29	4.04	1484.8		
OBS 1300	3.580	34.482	27.436	73.2	3.95	3.28	1485.1		
ISL 0	11.51	34.87	26.584	144.2	6.10	11.51	1495.6	0.000	
ISL 10	11.51	34.87	26.585	144.4	6.09	11.50	1495.8	.014	
ISL 25	11.50	34.87	26.587	144.8	6.08	11.50	1496.0	.036	
ISL 50	11.49	34.88	26.581	144.8	6.01	11.48	1496.4	.072	
ISL 75	11.48	34.88	26.596	144.9	6.04	11.47	1496.7	.108	
ISL 100	11.51	34.88	26.593	145.9	6.02	11.49	1497.3	.145	
ISL 150	11.49	34.85	26.642	142.3	5.48	11.47	1498.1	.217	
ISL 200	10.55	34.82	26.712	138.6	5.40	10.53	1495.4	.287	
ISL 250	10.09	34.78	26.784	132.5	5.17	10.08	1494.3	.354	
ISL 300	9.69	34.75	26.808	128.4	5.02	9.65	1493.9	.420	
ISL 400	9.00	34.64	26.835	128.1	5.22	8.95	1492.8	.548	
ISL 500	8.31	34.55	26.877	125.4	5.45	8.26	1491.8	.674	
ISL 600	7.65	34.51	26.930	120.8	5.02	7.59	1490.8	.797	
ISL 800	6.28	34.45	27.064	107.9	4.45	6.19	1486.8	1.028	
ISL 1000	4.78	34.42	27.234	93.0	4.31	4.68	1485.8	1.227	
ISL 1300	3.38	34.48	27.438	73.2	3.95	3.28	1485.1	1.478	



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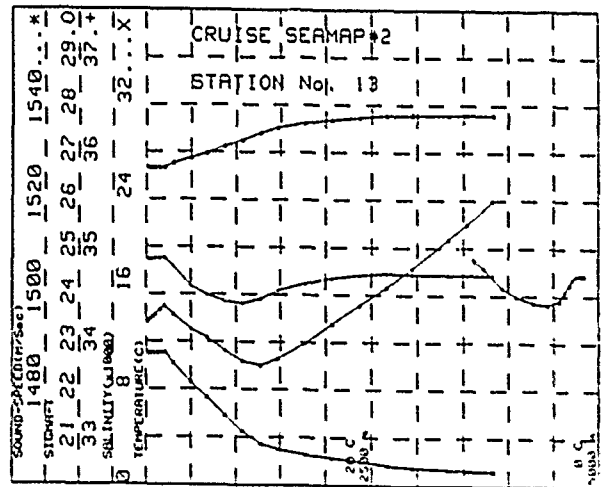
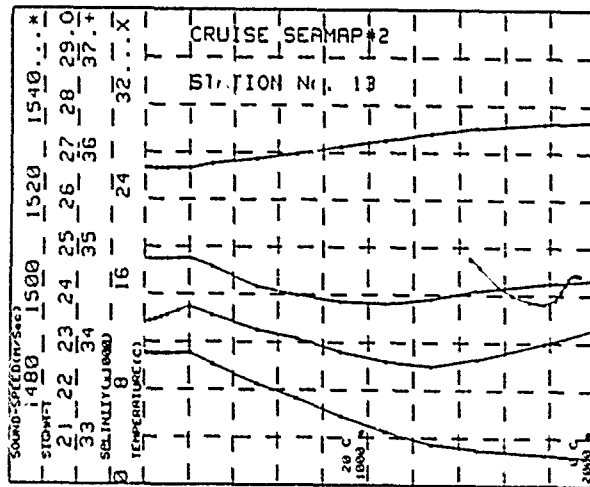
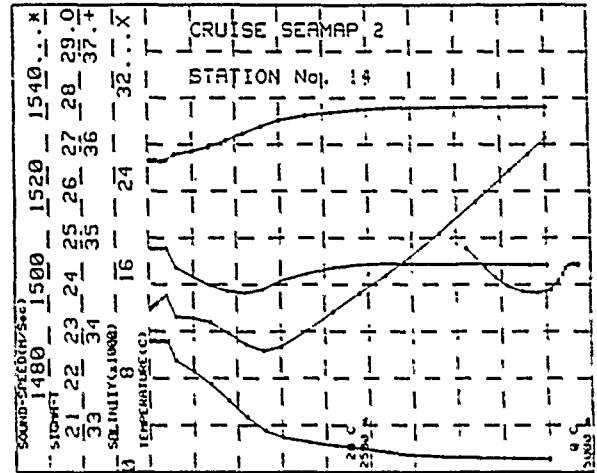
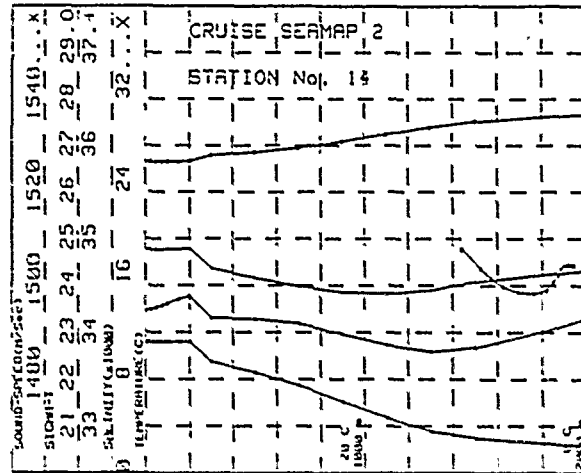


### Seamap 2 - Route B - Winter





STATION 13	SLAMP#2										SLAMP#2										SLAMP#2									
DATE: 14/06/1985	TIME: 0232GHI										TIME: 1400GHI										TIME: 1400GHI									
DEPTH	TEMP	SALINITY	SIGMA-T	A.S.V	OR	POT./TEMP	S.S	Dyn.m	U15	D	TEMP	SALINITY	SIGMA-T	A.S.V	OR	POT./TEMP	S.S	Dyn.m	U15	D	TEMP	SALINITY	SIGMA-T	A.S.V	OR	POT./TEMP	S.S	Dyn.m		
0005	0	11.040	34.871	26.640	136.2	34.871	26.640	136.2	34.871	26.640	136.2	34.871	26.640	136.2	34.871	26.640	136.2	34.871	26.640	136.2	34.871	26.640	136.2	34.871	26.640	136.2	34.871	26.640		
0005	25	11.050	34.871	26.644	137.0	34.871	26.644	137.0	34.871	26.644	137.0	34.871	26.644	137.0	34.871	26.644	137.0	34.871	26.644	137.0	34.871	26.644	137.0	34.871	26.644	137.0	34.871	26.644		
0005	51	11.070	34.871	26.644	137.6	34.871	26.644	137.6	34.871	26.644	137.6	34.871	26.644	137.6	34.871	26.644	137.6	34.871	26.644	137.6	34.871	26.644	137.6	34.871	26.644	137.6	34.871	26.644		
0005	77	11.040	34.871	26.648	138.0	34.871	26.648	138.0	34.871	26.648	138.0	34.871	26.648	138.0	34.871	26.648	138.0	34.871	26.648	138.0	34.871	26.648	138.0	34.871	26.648	138.0	34.871	26.648		
0005	103	11.060	34.871	26.650	138.5	34.871	26.650	138.5	34.871	26.650	138.5	34.871	26.650	138.5	34.871	26.650	138.5	34.871	26.650	138.5	34.871	26.650	138.5	34.871	26.650	138.5	34.871	26.650		
0005	129	11.080	34.860	26.648	139.6	34.860	26.648	139.6	34.860	26.648	139.6	34.860	26.648	139.6	34.860	26.648	139.6	34.860	26.648	139.6	34.860	26.648	139.6	34.860	26.648	139.6	34.860	26.648		
0005	155	11.060	34.863	26.648	140.9	34.863	26.648	140.9	34.863	26.648	140.9	34.863	26.648	140.9	34.863	26.648	140.9	34.863	26.648	140.9	34.863	26.648	140.9	34.863	26.648	140.9	34.863	26.648		
0005	181	11.040	34.864	26.648	142.3	34.864	26.648	142.3	34.864	26.648	142.3	34.864	26.648	142.3	34.864	26.648	142.3	34.864	26.648	142.3	34.864	26.648	142.3	34.864	26.648	142.3	34.864	26.648		
0005	207	11.060	34.864	26.648	143.7	34.864	26.648	143.7	34.864	26.648	143.7	34.864	26.648	143.7	34.864	26.648	143.7	34.864	26.648	143.7	34.864	26.648	143.7	34.864	26.648	143.7	34.864	26.648		
0005	233	11.040	34.864	26.648	145.1	34.864	26.648	145.1	34.864	26.648	145.1	34.864	26.648	145.1	34.864	26.648	145.1	34.864	26.648	145.1	34.864	26.648	145.1	34.864	26.648	145.1	34.864	26.648		
0005	259	11.060	34.864	26.648	146.5	34.864	26.648	146.5	34.864	26.648	146.5	34.864	26.648	146.5	34.864	26.648	146.5	34.864	26.648	146.5	34.864	26.648	146.5	34.864	26.648	146.5	34.864	26.648		
0005	285	11.040	34.864	26.648	147.9	34.864	26.648	147.9	34.864	26.648	147.9	34.864	26.648	147.9	34.864	26.648	147.9	34.864	26.648	147.9	34.864	26.648	147.9	34.864	26.648	147.9	34.864	26.648		
0005	311	11.060	34.864	26.648	149.3	34.864	26.648	149.3	34.864	26.648	149.3	34.864	26.648	149.3	34.864	26.648	149.3	34.864	26.648	149.3	34.864	26.648	149.3	34.864	26.648	149.3	34.864	26.648		
0005	337	11.040	34.864	26.648	150.7	34.864	26.648	150.7	34.864	26.648	150.7	34.864	26.648	150.7	34.864	26.648	150.7	34.864	26.648	150.7	34.864	26.648	150.7	34.864	26.648	150.7	34.864	26.648		
0005	363	11.060	34.864	26.648	152.1	34.864	26.648	152.1	34.864	26.648	152.1	34.864	26.648	152.1	34.864	26.648	152.1	34.864	26.648	152.1	34.864	26.648	152.1	34.864	26.648	152.1	34.864	26.648		
0005	389	11.040	34.864	26.648	153.5	34.864	26.648	153.5	34.864	26.648	153.5	34.864	26.648	153.5	34.864	26.648	153.5	34.864	26.648	153.5	34.864	26.648	153.5	34.864	26.648	153.5	34.864	26.648		
0005	415	11.060	34.864	26.648	154.9	34.864	26.648	154.9	34.864	26.648	154.9	34.864	26.648	154.9	34.864	26.648	154.9	34.864	26.648	154.9	34.864	26.648	154.9	34.864	26.648	154.9	34.864	26.648		
0005	441	11.040	34.864	26.648	156.3	34.864	26.648	156.3	34.864	26.648	156.3	34.864	26.648	156.3	34.864	26.648	156.3	34.864	26.648	156.3	34.864	26.648	156.3	34.864	26.648	156.3	34.864	26.648		
0005	467	11.060	34.864	26.648	157.7	34.864	26.648	157.7	34.864	26.648	157.7	34.864	26.648	157.7	34.864	26.648	157.7	34.864	26.648	157.7	34.864	26.648	157.7	34.864	26.648	157.7	34.864	26.648		
0005	493	11.040	34.864	26.648	159.1	34.864	26.648	159.1	34.864	26.648	159.1	34.864	26.648	159.1	34.864	26.648	159.1	34.864	26.648	159.1	34.864	26.648	159.1	34.864	26.648	159.1	34.864	26.648		
0005	519	11.060	34.864	26.648	160.5	34.864	26.648	160.5	34.864	26.648	160.5	34.864	26.648	160.5	34.864	26.648	160.5	34.864	26.648	160.5	34.864	26.648	160.5	34.864	26.648	160.5	34.864	26.648		
0005	545	11.040	34.864	26.648	161.9	34.864	26.648	161.9	34.864	26.648	161.9	34.864	26.648	161.9	34.864	26.648	161.9	34.864	26.648	161.9	34.864	26.648	161.9	34.864	26.648	161.9	34.864	26.648		
0005	571	11.060	34.864	26.648	163.3	34.864	26.648	163.3	34.864	26.648	163.3	34.864	26.648	163.3	34.864	26.648	163.3	34.864	26.648	163.3	34.864	26.648	163.3	34.864	26.648	163.3	34.864	26.648		
0005	597	11.040	34.864	26.648	164.7	34.864	26.648	164.7	34.864	26.648	164.7	34.864	26.648	164.7	34.864	26.648	164.7	34.864	26.648	164.7	34.864	26.648	164.7	34.864	26.648	164.7	34.864	26.648		
0005	623	11.060	34.864	26.648	166.1	34.864	26.648	166.1	34.864	26.648	166.1	34.864	26.648	166.1	34.864	26.648	166.1	34.864	26.648	166.1	34.864	26.648	166.1	34.864	26.648	166.1	34.864	26.648		
0005	649	11.040	34.864	26.648	167.5	34.864	26.648	167.5	34.864	26.648	167.5	34.864	26.648	167.5	34.864	26.648	167.5	34.864	26.648	167.5	34.864	26.648	167.5	34.864	26.648	167.5	34.864	26.648		
0005	675	11.060	34.864	26.648	168.9	34.864	26.648	168.9	34.864	26.648	168.9	34.864	26.648	168.9	34.864	26.648	168.9	34.864	26.648	168.9	34.864	26.648	168.9	34.864	26.648	168.9	34.864	26.648		
0005	701	11.040	34.864	26.648	170.3	34.864	26.648	170.3	34.864	26.648	170.3	34.864	26.648	170.3	34.864	26.648	170.3	34.864	26.648	170.3	34.864	26.648	170.3	34.864	26.648	170.3	34.864	26.648		
0005	727	11.060	34.864	26.648	171.7	34.864	26.648	171.7	34.864	26.648	171.7	34.864	26.648	171.7	34.864	26.648	171.7	34.864	26.648	171.7	34.864	26.648	171.7	34.864	26.648	171.7	34.864	26.648		
0005	753	11.040	34.864	26.648	173.1	34.864	26.648	173.1	34.864	26.648	173.1	34.864	26.648	173.1	34.864	26.648	173.1	34.864	26.648	173.1	34.864	26.648	173.1	34.864	26.648	173.1	34.864	26.648		
0005	779	11.060	34.864	26.648	174.5	34.864	26.648	174.5	34.864	26.648	174.5	34.864	26.648	174.5	34.864	26.648	174.5	34.864	26.648	174.5	34.864	26.648	174.5	34.864	26.648	174.5	34.864	26.648		
0005	805	11.040	34.864	26.648	175.9	34.864	26.648	175.9	34.864	26.648	175.9	34.864	26.648	175.9	34.864	26.648	175.9	34.864	26.648	175.9	34.864	26.648	175.9	34.864	26.648	175.9	34.864	26.648		
0005	831	11.060	34.864	26.648	177.3	34.864	26.648	177.3	34.864	26.648	177.3	34.864	26.648	177.3	34.864	26.648	177.3	34.864	26.648	177.3	34.864	26.648	177.3	34.864	26.648	177.3	34.864	26.648		
0005	857	11.040	34.864	26.648	178.7	34.864	26.648	178.7	34.864	26.648	178.7	34.864	26.648	178.7	34.864	26.648	178.7	34.864	26.648	178.7	34.864	26.648	178.7	34.864	26.648	178.7	34.864	26.648		
0005	883	11.060	34.864	26.648	180.1	34.864	26.648	180.1	34.864	26.648	180.1	34.864	26.648	180.1	34.864	26.648	180.1	34.864	26.648	180.1	34.864	26.648	180.1	34.864	26.648	180.1	34.864	26.648		
0005	909	11.040	34.864	26.648	181.5	34.864	26.648	181.5	34.864	26.648	181.5	34.864	26.648	181.5	34.864	26.648	181.5	34.864	26.648	181.5	34.864	26.648	181.5	34.864	26.648	181.5	34.864	26.648		
0005	935	11.060	34.864	26.648	182.9	34.864	26.648	182.9	34.864	26.648	182.9	34.864	26.648	182.9	34.864	26.648	182.9	34.864	26.648	182.9	34.864	26.648	182.9	34.864	26.648	182.9	34.864	26.648		
0005	961	11.040	34.864	26.648	184.3	34.864	26.648	184.3	34.864	26.648	184.3	34.864	26.648	184.3	34.864	26.648	184.3	34.864	26.648	184.3	34.864	26.648	184.3	34.864	26.648	184.3	34.864	26.648		
0005	987	11.060	34.864	26.648	185.7	34.864	26.648	185.7	34.864	26.648	185.7	34.864	26.648	185.7	34.864	26.648	185.7	34.864	26.648	185.7	34.864	26.648	185.7	34.864	26.648</					



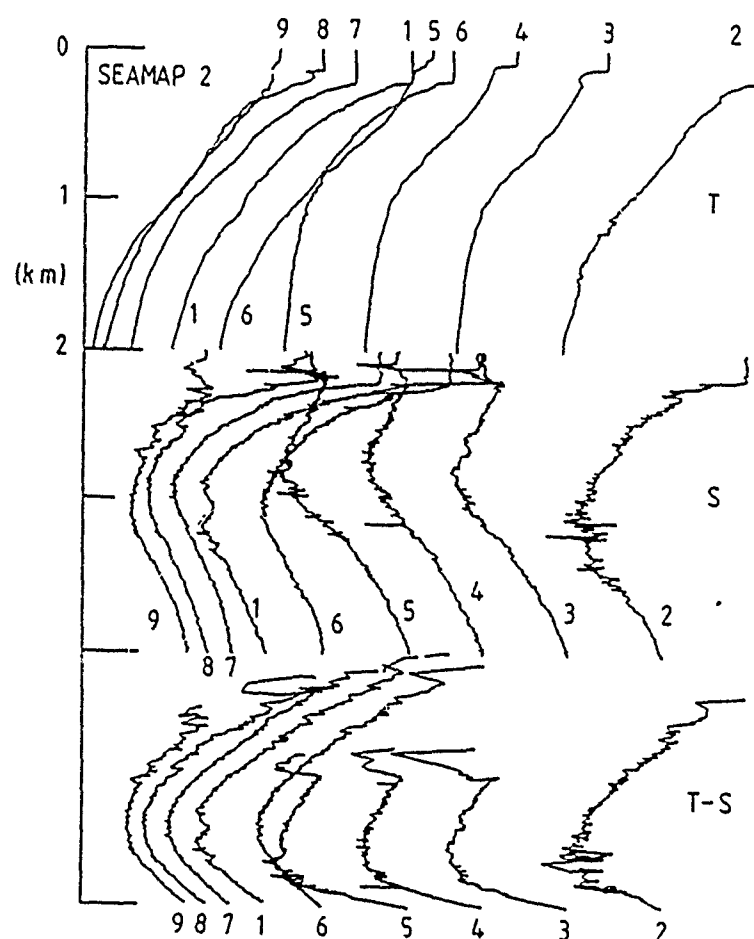
LISTINGS AND PROFILES OF CTD DATA GATHERED ON WINTER SURVEY SEAMAP 2 (RANRL 6/85) ARE GIVEN ON FOLLOWING PAGES.

THE STATIONS WERE TAKEN NORTH AND SOUTH OF THE CHATHAM RISE, WITH AN ADDITIONAL UNCALIBRATED STATION IN THE KERMADEC TRENCH.

(See figure 51(a) for VCTOD station positions.)

CALIBRATION DATA OBTAINED FROM NISKIN BOTTLES MOUNTED IN A ROSETTE SAMPLER 1 m ABOVE THE CTD IS SHOWN ON PAGE 143.

SHOWN BELOW ARE OFFSET PROFILES FOR VCTOD STATIONS 1 TO 9



Text continued on page 145

SHIP : HNS COOK - Fleceay  
 STATION NUMBER : 1 (THROUGH THE CRUISE)  
 DATE : 24-AUG-1985 (DAY NUMBER 236)  
 START TIME : 0000 GMT - 5  
 CRUISE : 0006/85  
 POSITION : 45:23.455 176:50.15W  
 CAST DEPTH : 2725 METRES  
 BOTTOM DEPTH : 2969 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
0.0	0.0	13.247	35.177	26.481	154.01	0.000	1501.60	13.25 14 0.005 0.005
10.0	9.9	13.244	35.168	26.482	154.15	0.154	1501.71	13.24 16 0.002 0.004
20.0	19.8	13.240	35.175	26.480	154.60	0.308	1501.85	13.24 13 0.004 0.004
30.0	29.8	13.242	35.180	26.484	154.51	0.463	1502.03	13.24 19 0.002 0.004
40.0	39.7	13.243	35.181	26.485	154.74	0.618	1502.19	13.24 18 0.000 0.004
50.0	49.6	13.250	35.183	26.485	155.00	0.773	1502.35	13.24 16 0.004 0.004
60.0	59.5	13.253	35.182	26.484	155.38	0.928	1502.52	13.25 17 0.000 0.004
70.0	69.4	13.253	35.177	26.481	155.91	1.083	1502.68	13.24 21 0.000 0.004
80.0	79.4	13.253	35.181	26.482	156.03	1.239	1502.86	13.24 19 0.000 0.006
90.0	89.3	13.245	35.178	26.482	156.31	1.395	1502.98	13.23 11 0.003 0.003
100.0	99.2	13.246	35.181	26.485	156.27	1.552	1503.14	13.23 13 0.004 0.005
120.0	119.0	13.251	35.180	26.483	157.08	1.865	1503.47	13.23 13 0.004 0.002
140.0	138.9	13.248	35.179	26.482	157.67	2.180	1503.79	13.23 12 0.005 0.003
160.0	158.7	13.253	35.177	26.479	158.46	2.496	1504.12	13.23 18 0.000 0.005
180.0	178.5	13.253	35.175	26.478	159.09	2.813	1504.45	13.23 14 0.000 0.005
200.0	198.3	13.253	35.181	26.482	159.26	3.132	1504.80	13.23 21 0.004 0.004
220.0	218.2	13.259	35.018	26.464	161.33	3.453	1507.00	12.69 18 0.241 0.238
240.0	238.0	12.165	35.016	26.570	151.52	3.762	1501.55	12.13 19 0.038 0.045
260.0	257.8	11.859	34.956	26.582	150.72	4.064	1500.79	11.83 21 0.069 0.079
280.0	277.6	11.604	34.946	26.622	147.29	4.360	1500.19	11.57 16 0.057 0.063
300.0	297.4	11.197	34.888	26.653	144.64	4.654	1499.05	11.16 22 0.009 0.042
320.0	317.2	10.895	34.843	26.673	143.09	4.941	1498.26	10.86 21 0.050 0.045
340.0	337.1	10.608	34.801	26.696	141.18	5.226	1497.55	10.57 17 0.027 0.016
360.0	356.9	10.361	34.758	26.701	140.91	5.507	1496.97	10.32 21 0.096 0.096
380.0	376.7	10.164	34.713	26.747	136.88	5.785	1496.56	10.12 16 0.005 0.006
400.0	396.5	9.918	34.724	26.751	136.73	6.059	1495.95	9.87 21 0.049 0.051
420.0	416.3	9.612	34.687	26.774	134.78	6.330	1495.14	9.56 19 0.045 0.050
440.0	436.1	9.420	34.686	26.805	132.07	6.597	1494.80	9.37 21 0.014 0.013
460.0	455.9	9.225	34.654	26.811	131.71	6.860	1494.34	9.17 18 0.050 0.038
480.0	475.7	9.059	34.654	26.838	129.34	7.120	1494.07	8.91 20 0.025 0.029
500.0	495.5	8.817	34.630	26.858	127.62	7.378	1493.49	8.78 17 0.022 0.018
520.0	515.3	8.582	34.581	26.886	125.49	7.631	1492.64	8.53 20 0.017 0.017
540.0	535.1	8.367	34.556	26.912	123.50	7.879	1492.29	8.31 19 0.012 0.014
560.0	554.8	8.187	34.534	26.937	121.54	8.121	1491.75	8.11 17 0.013 0.012
580.0	574.6	8.007	34.512	26.962	119.54	8.358	1491.25	7.94 17 0.013 0.012
600.0	594.4	7.827	34.484	26.987	117.54	8.590	1490.71	7.77 21 0.026 0.019
620.0	614.2	7.647	34.462	27.011	115.54	8.817	1490.16	7.61 21 0.013 0.012
640.0	634.0	7.467	34.440	27.035	113.54	9.040	1489.61	7.45 21 0.026 0.019
660.0	653.8	7.287	34.418	27.059	111.54	9.258	1489.06	7.29 21 0.013 0.012
680.0	673.6	7.107	34.396	27.083	109.54	9.471	1488.51	7.13 21 0.013 0.012
700.0	693.4	6.927	34.374	27.107	107.54	9.679	1487.96	6.97 21 0.013 0.012
720.0	713.2	6.747	34.352	27.131	105.54	9.882	1487.41	6.81 21 0.013 0.012
740.0	733.0	6.567	34.330	27.155	103.54	10.085	1486.86	6.65 21 0.013 0.012
760.0	752.8	6.387	34.308	27.179	101.54	10.288	1486.31	6.49 21 0.013 0.012
780.0	772.6	6.207	34.286	27.203	99.54	10.491	1485.76	6.33 21 0.013 0.012
800.0	792.4	6.027	34.264	27.227	97.54	10.694	1485.21	6.17 21 0.013 0.012
820.0	812.2	5.847	34.242	27.251	95.54	10.897	1484.66	6.01 21 0.013 0.012
840.0	832.0	5.667	34.220	27.275	93.54	11.100	1484.11	5.85 21 0.013 0.012
860.0	851.8	5.487	34.198	27.299	91.54	11.303	1483.56	5.69 21 0.013 0.012
880.0	871.6	5.307	34.176	27.323	89.54	11.506	1483.01	5.53 21 0.013 0.012
900.0	891.4	5.127	34.154	27.347	87.54	11.709	1482.46	5.37 21 0.013 0.012
920.0	911.2	4.947	34.132	27.371	85.54	11.912	1481.91	5.21 21 0.013 0.012
940.0	931.0	4.767	34.110	27.395	83.54	12.115	1481.36	5.05 21 0.013 0.012
960.0	950.8	4.587	34.088	27.419	81.54	12.318	1480.81	4.89 21 0.013 0.012
980.0	970.6	4.407	34.066	27.443	79.54	12.521	1480.26	4.73 21 0.013 0.012
1000.0	990.4	4.227	34.044	27.467	77.54	12.724	1479.71	4.57 21 0.013 0.012
1020.0	1010.2	4.047	34.022	27.491	75.54	12.927	1479.16	4.41 21 0.013 0.012
1040.0	1030.0	3.867	34.000	27.515	73.54	13.130	1478.61	4.25 21 0.013 0.012
1060.0	1049.8	3.687	33.978	27.539	71.54	13.333	1478.06	4.09 21 0.013 0.012
1080.0	1069.6	3.507	33.956	27.563	69.54	13.536	1477.51	3.93 21 0.013 0.012
1100.0	1089.4	3.327	33.934	27.587	67.54	13.739	1476.96	3.77 21 0.013 0.012
1120.0	1109.2	3.147	33.912	27.611	65.54	13.942	1476.41	3.61 21 0.013 0.012
1140.0	1129.0	2.967	33.890	27.635	63.54	14.145	1475.86	3.45 21 0.013 0.012
1160.0	1148.8	2.787	33.868	27.659	61.54	14.348	1475.31	3.29 21 0.013 0.012
1180.0	1168.6	2.607	33.846	27.683	59.54	14.551	1474.76	3.13 21 0.013 0.012
1200.0	1188.4	2.427	33.824	27.707	57.54	14.754	1474.21	2.97 21 0.013 0.012
1220.0	1208.2	2.247	33.802	27.731	55.54	14.957	1473.66	2.81 21 0.013 0.012
1240.0	1228.0	2.067	33.780	27.755	53.54	15.160	1473.11	2.65 21 0.013 0.012
1260.0	1247.8	1.887	33.758	27.779	51.54	15.363	1472.56	2.49 21 0.013 0.012
1280.0	1267.6	1.707	33.736	27.803	49.54	15.566	1472.01	2.33 21 0.013 0.012
1300.0	1287.4	1.527	33.714	27.827	47.54	15.769	1471.46	2.17 21 0.013 0.012
1320.0	1307.2	1.347	33.692	27.851	45.54	15.972	1470.91	2.01 21 0.013 0.012
1340.0	1327.0	1.167	33.670	27.875	43.54	16.175	1470.36	1.85 21 0.013 0.012
1360.0	1346.8	0.987	33.648	27.899	41.54	16.378	1469.81	1.69 21 0.013 0.012
1380.0	1366.6	0.807	33.626	27.923	39.54	16.581	1469.26	1.53 21 0.013 0.012
1400.0	1386.4	0.627	33.604	27.947	37.54	16.784	1468.71	1.37 21 0.013 0.012
1420.0	1406.2	0.447	33.582	27.971	35.54	16.987	1468.16	1.21 21 0.013 0.012
1440.0	1426.0	0.267	33.560	27.995	33.54	17.190	1467.61	1.05 21 0.013 0.012
1460.0	1445.8	0.087	33.538	28.019	31.54	17.393	1467.06	0.89 21 0.013 0.012
1480.0	1465.6	-0.093	33.516	28.043	29.54	17.596	1466.51	0.73 21 0.013 0.012
1500.0	1485.4	-0.273	33.494	28.067	27.54	17.799	1465.96	0.57 21 0.013 0.012
1520.0	1505.2	-0.453	33.472	28.091	25.54	17.999	1465.41	0.41 21 0.013 0.012
1540.0	1525.0	-0.633	33.450	28.115	23.54	18.202	1464.86	0.25 21 0.013 0.012
1560.0	1544.8	-0.813	33.428	28.139	21.54	18.405	1464.31	0.09 21 0.013 0.012
1580.0	1564.6	-1.000	33.406	28.163	19.54	18.608	1463.76	-0.07 21 0.013 0.012
1600.0	1584.4	-1.180	33.384	28.187	17.54	18.811	1463.21	-0.21 21 0.013 0.012
1620.0	1604.2	-1.360	33.362	28.211	15.54	19.014	1462.66	-0.35 21 0.013 0.012
1640.0	1624.0	-1.540	33.340	28.235	13.54	19.217	1462.11	-0.49 21 0.013 0.012
1660.0	1643.8	-1.720	33.318	28.259	11.54	19.420	1461.56	-0.63 21 0.013 0.012
1680.0	1663.6	-1.900	33.296	28.283	9.54	19.623	1461.01	-0.77 21 0.013 0.012
1700.0	1683.4	-2.080	33.274	28.307	7.54	19.826	1460.46	-0.91 21 0.013 0.012
1720.0	1703.2	-2.260	33.252	28.331	5.54	20.029	1459.91	-1.05 21 0.013 0.012
1740.0	1723.0	-2.440	33.230	28.355	3.54	20.232	1459.36	-1.19 21 0.013 0.012
1760.0	1742.8	-2.620	33.208	28.379	1.54	20.435	1458.81	-1.33 21 0.013 0.012
1780.0	1762.6	-2.800	33.186	28.403	-0.46	20.638	1458.26	-1.47 21 0.013 0.012
1800.0	1782.4	-2.980	33.164	28.427	-2.46	20.841	1457.71	-1.61 21 0.013 0.012
1820.0	1802.2	-3.160	33.142	28.451	-4.46	21.044	1457.16	-1.75 21 0.013 0.012
1840.0	1822.0	-3.340	33.120	28.475	-6.46	21.247	1456.61	-1.89 21 0.013 0.012
1860.0	1841.8	-3.520	33.098	28.499	-8.46	21.450	1456.06	-2.03 21 0.013 0.012
1880.0	1861.6	-3.700	33.076	28.523	-10.46	21.653	1455.51	-2.17 21 0.013 0.012
1900.0	1881.4	-3.880	33.054	28.547	-12.46	21.856	1454.96	-2.31 21 0.013 0.012
1920.0	1901.2	-4.060	33.032	28.571	-14.46	22.059	1454.41	-2.45 21 0.013 0.012
1940.0	1921.0	-4.240	33.010	28.595	-16.46	22.262	1453.86	-2.59 21 0.013 0.012
1960.0	1940.8	-4.420	32.988	28.619	-18.46	22.465	1453.31	-2.73 21 0.013 0.012
1980.0	1960.6	-4.600	32.966	28.643	-20.46	22		

SHIP : HRS COOK - Plessey  
 STATION NUMBER : 3 (THROUGH THE CRUISE)  
 STATION NUMBER : 3 (THROUGH THE YEAR)  
 DATE : 25-AUG-1985 (DAY NUMBER 237)  
 START TIME : 0842 GMT - 2  
 CRUISE : C596/85  
 POSITION : 45:43.00N 178:26.00W  
 CAST DEPTH : 2917 METRES  
 BOTTOM DEPTH : 4169 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
0.0	0.0	9.129	34.386	26.617	141.13	0.000	1486.59	9.12 15 0.003 0.004
10.0	9.9	9.134	34.382	26.613	141.66	0.141	1486.73	9.13 20 0.003 0.003
20.0	19.8	9.135	34.382	26.613	141.85	0.283	1486.90	9.13 20 0.003 0.004
30.0	29.8	9.137	34.380	26.611	142.27	0.425	1487.09	9.13 19 0.000 0.003
40.0	39.7	9.137	34.381	26.611	142.40	0.568	1487.25	9.13 16 0.000 0.005
50.0	49.6	9.136	34.380	26.611	142.63	0.710	1487.40	9.13 13 0.002 0.002
60.0	59.5	9.126	34.385	26.616	142.32	0.853	1487.54	9.12 16 0.004 0.002
70.0	69.4	9.119	34.389	26.621	142.10	0.996	1487.67	9.11 16 0.003 0.000
80.0	79.3	9.123	34.383	26.616	142.35	1.137	1487.86	9.11 20 0.003 0.004
90.0	89.2	9.118	34.390	26.622	142.36	1.280	1487.99	9.11 15 0.002 0.001
100.0	99.2	9.117	34.387	26.620	142.77	1.422	1488.16	9.11 16 0.000 0.000
120.0	119.0	8.831	34.280	26.581	146.71	1.710	1487.04	8.82 16 0.304 0.321
140.0	138.8	7.993	34.368	26.779	128.13	1.990	1484.57	7.98 16 0.021 0.017
160.0	158.6	7.849	34.372	26.803	126.37	2.233	1484.25	7.83 17 0.037 0.035
180.0	178.4	7.784	34.397	26.813	123.67	2.483	1484.53	7.77 18 0.019 0.024
200.0	198.3	7.886	34.435	26.847	122.64	2.729	1485.28	7.87 16 0.032 0.038
220.0	218.1	7.917	34.456	26.859	121.92	2.974	1485.74	7.89 20 0.018 0.016
240.0	237.9	7.807	34.440	26.863	121.85	3.219	1485.50	7.78 14 0.005 0.004
260.0	257.7	7.780	34.440	26.867	121.74	3.462	1485.80	7.75 18 0.010 0.009
280.0	277.5	7.687	34.437	26.878	121.01	3.705	1485.75	7.66 17 0.010 0.010
300.0	297.3	7.618	34.429	26.882	120.86	3.947	1485.81	7.59 19 0.011 0.011
320.0	317.1	7.541	34.426	26.890	120.38	4.190	1485.84	7.51 16 0.013 0.014
340.0	336.9	7.445	34.413	26.894	120.29	4.428	1485.76	7.41 19 0.024 0.024
360.0	356.7	7.357	34.416	26.909	119.16	4.667	1485.79	7.32 17 0.013 0.012
380.0	376.5	7.254	34.408	26.917	118.59	4.905	1485.60	7.22 19 0.014 0.011
400.0	396.3	7.166	34.400	26.923	118.26	5.142	1485.64	7.13 19 0.020 0.019
420.0	416.1	7.081	34.394	26.931	117.70	5.378	1485.64	7.04 17 0.016 0.015
440.0	435.9	6.968	34.390	26.943	116.84	5.612	1485.53	6.93 20 0.021 0.018
460.0	455.7	6.901	34.391	26.951	116.00	5.845	1485.60	6.86 17 0.017 0.014
480.0	475.5	6.822	34.390	26.963	115.38	6.076	1485.58	6.78 22 0.018 0.020
500.0	495.3	6.696	34.384	26.975	114.38	6.306	1485.42	6.65 19 0.017 0.016
520.0	515.1	6.582	34.364	27.001	112.29	6.533	1485.00	6.53 18 0.013 0.011
540.0	534.8	6.517	34.349	27.036	109.20	6.767	1484.33	6.46 15 0.018 0.015
560.0	554.6	6.411	34.335	27.089	104.77	6.995	1483.96	6.35 17 0.025 0.022
580.0	574.4	6.275	34.310	27.162	97.62	7.228	1483.20	6.24 13 0.017 0.015
600.0	594.2	6.046	34.241	27.257	88.35	7.459	1481.29	6.08 19 0.007 0.013
620.0	614.0	5.831	34.260	27.314	82.93	7.687	1481.07	5.96 16 0.026 0.031
640.0	633.8	5.526	34.400	27.380	76.63	7.912	1481.32	5.84 21 0.005 0.009
660.0	653.6	5.234	34.437	27.430	72.05	8.141	1481.04	5.70 14 0.004 0.004
680.0	673.4	4.950	34.498	27.496	66.90	8.368	1481.01	5.58 18 0.012 0.009
700.0	693.2	4.681	34.511	27.520	63.87	8.593	1481.96	5.45 18 0.005 0.004
720.0	713.0	4.424	34.516	27.556	60.79	8.817	1483.28	5.33 14 0.000 0.005
740.0	732.8	4.184	34.581	27.592	57.61	9.040	1484.56	5.21 19 0.003 0.002
760.0	752.6	3.954	34.609	27.631	55.18	9.264	1487.87	5.10 18 0.003 0.002
780.0	772.4	3.731	34.622	27.662	53.51	9.487	1489.34	5.00 19 0.000 0.003
800.0	792.2	3.512	34.653	27.664	51.44	9.710	1492.73	4.90 19 0.003 0.003
820.0	812.0	3.294	34.674	27.688	49.72	9.933	1494.21	4.80 20 0.000 0.005
840.0	831.8	3.076	34.686	27.703	48.55	10.156	1493.67	4.70 22 0.002 0.002
860.0	851.6	2.858	34.713	27.728	46.49	10.379	1495.17	4.60 20 0.002 0.003
880.0	871.4	2.639	34.729	27.744	45.15	10.602	1496.65	4.50 20 0.003 0.002
900.0	891.2	2.420	34.728	27.750	44.68	10.825	1498.03	4.40 18 0.003 0.002
920.0	911.0	2.201	34.737	27.762	43.63	11.048	1499.43	4.30 18 0.005 0.003
940.0	930.8	1.982	34.738	27.770	42.71	11.271	1500.75	4.20 19 0.001 0.004
960.0	950.6	1.763	34.741	27.779	41.74	11.494	1502.05	4.10 21 0.001 0.004
980.0	970.4	1.544	34.740	27.785	41.00	11.717	1503.35	4.00 21 0.004 0.004
1000.0	990.2	1.325	34.745	27.795	39.78	11.940	1504.70	3.90 23 0.000 0.002
1020.0	1010.0	1.106	34.736	27.791	39.90	12.163	1505.59	3.80 20 0.000 0.003

SHIP : HRS COOK - Plessey  
 STATION NUMBER : 4 (THROUGH THE CRUISE)  
 STATION NUMBER : 4 (THROUGH THE YEAR)  
 DATE : 25-AUG-1985 (DAY NUMBER 238)  
 START TIME : 0150 GMT - 2  
 CRUISE : C596/85  
 POSITION : 46:01.06S 179:53.50W  
 CAST DEPTH : 2861 METRES  
 BOTTOM DEPTH : 3280 METRES

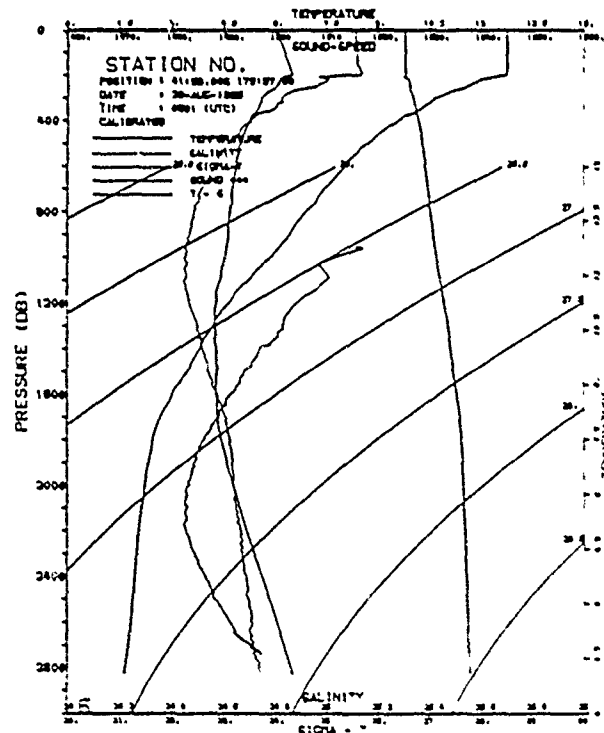
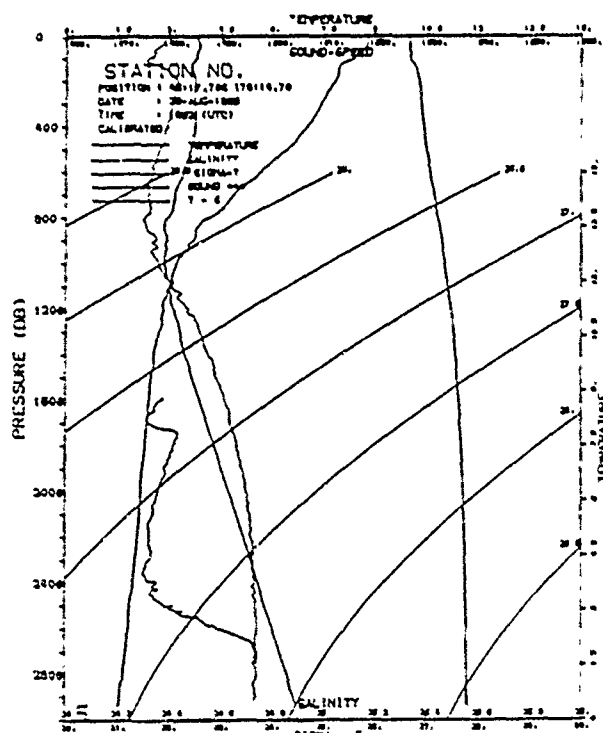
PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
0.0	0.0	9.100	34.422	26.650	138.02	0.000	1496.51	9.10 8 0.004 0.003
10.0	9.9	9.103	34.414	26.643	138.80	0.138	1496.64	9.10 18 0.004 0.004
20.0	19.8	9.101	34.413	26.643	139.06	0.277	1496.83	9.10 19 0.005 0.004
30.0	29.8	9.098	34.417	26.647	138.87	0.416	1496.99	9.09 22 0.003 0.003
40.0	39.7	9.087	34.414	26.646	139.14	0.555	1497.10	9.08 17 0.003 0.003
50.0	49.6	9.077	34.414	26.647	139.22	0.694	1497.23	9.07 19 0.003 0.004
60.0	59.5	9.076	34.413	26.646	139.46	0.834	1497.41	9.07 22 0.000 0.004
70.0	69.4	9.074	34.405	26.644	140.20	0.974	1497.53	9.07 22 0.004 0.002
80.0	79.3	9.064	34.411	26.647	139.81	1.114	1497.67	9.06 17 0.002 0.003
90.0	89.2	8.868	34.368	26.541	140.51	1.254	1497.07	8.86 24 0.191 0.199
100.0	99.2	8.292	34.332	26.706	134.45	1.391	1494.91	8.28 15 0.146 0.121
120.0	119.0	7.986	34.407	26.810	124.85	1.647	1494.31	7.97 15 0.009 0.009
140.0	138.8	7.973	34.426	26.827	123.57	1.895	1494.60	7.96 14 0.003 0.007
160.0	158.6	7.902	34.431	26.842	122.50	2.141	1494.69	7.89 20 0.009 0.009
180.0	178.4	7.861	34.447	26.859	121.11	2.385	1494.88	7.84 22 0.003 0.004
200.0	198.3	7.789	34.443	26.868	120.68	2.627	1494.92	7.77 26 0.011 0.008
220.0	218.1	7.736	34.442	26.875	120.34	2.868	1495.00	7.71 15 0.004 0.004
240.0	237.9	7.695	34.445	26.884	119.81	3.107	1495.22	7.67 23 0.010 0.008
260.0	257.7	7.616	34.435	26.887	119.76	3.347	1495.20	7.59 18 0.014 0.010
280.0	277.5	7.529	34.406	26.877	121.04	3.587	1495.16	7.50 15 0.015 0.030
300.0	297.3	7.451	34.429	26.906	118.52	3.826	1495.21	7.42 22 0.007 0.008
320.0	317.1	7.359	34.423	26.914	118.04	4.063	1495.17	7.33 26 0.014 0.021
340.0	336.9	7.284	34.411	26.915	118.16	4.299	1495.18	7.25 11 0.012 0.014
360.0	356.7	7.174	34.407	26.928	117.21	4.535	1495.08	7.14 17 0.014 0.013
380.0	376.5	7.075	34.411	26.945	115.83	4.768	1495.02	7.04 21 0.019 0.015
400.0	396.3	6.979	34.397	26.947	115.85	4.999	1494.94	6.94 10 0.012 0.012
420.0	416.1	6.868	34.399	26.964	114.48	5.230	1494.82	6.83 18 0.013 0.009
440.0	435.9	6.783	34.400	26.976	113.51	5.458	1494.83	6.74 15 0.016 0.016
460.0	455.7	6.660	34.393	26.987	112.67	5.684	1494.58	6.62 15 0.014 0.015
480.0	475.5	6.499	34.385	27.003	111.32	5.908	1494.34	6.46 17 0.027 0.021
500.0	495.3	6.318	34.386	27.026	109.16	6.129	1493.99	6.27 20 0.013 0.006
520.0	515.1	6.030	34.371	27.052	107.12	6.347	1493.61	5.98 14 0.017 0.014
540.0	534.8	5.833	34.354	27.080	103.79	6.561	1492.78	5.58 15 0.023 0.014
560.0	554.6	5.631	34.340	27.162	96.92	6.771	1491.50	5.45 17 0.009 0.009
580.0	574.4	5.393	34.341	27.220	91.56	6.981	1490.99	5.33 19 0.024 0.019
600.0	594.2	5.191	34.373	27.309	82.99	7.195	1490.16	5.23 22 0.005 0.004
620.0	614.0	4.939	34.389	27.362	77.79	7.403	1490.01	5.12 20 0.010 0.006
640.0	633.8	4.684	34.439	27.420	72.64	7.611	1490.97	5.01 19 0.007 0.003
660.0	653.6	4.427	34.467	27.458	69.31	7.820	1491.90	4.93 12 0.008 0.007
680.0	673.4	4.171	34.515	27.515	64.06	8.027	1492.76	4.83 19 0.004 0.004
700.0	693.2	3.916	34.548	27.551	60.85	8.237	1493.07	4.70 14 0.004 0.002
720.0	713.0	3.657	34.573	27.579	58.50	8.445	1493.19	4.58 21 0.004 0.004
740.0	732.8	3.404	34.604	27.611	55.78	8.651	1493.51	4.46 20 0.000 0.002
760.0	752.6	3.148	34.623	27.633	54.00	8.855	1493.88	4.34 18 0.005 0.003
780.0	772.4	2.888	34.648	27.659	51.85	9.058	1495.26	4.22 18 0.000 0.003
800.0	792.2	2.628	34.668	27.679	50.31	9.261	1496.76	4.10 20 0.004 0.004
820.0	812.0	2.368	34.690	27.701	48.51			
840.0	831.8	2.108	34.711	27.723	46.71			
860.0	851.6	1.848	34.732	27.745	44.91			
880.0	871.4	1.588	34.753	27.767	43.11			
900.0	891.2	1.328	34.774	27.789	41.31			
920.0	911.0	1.068	34.795	27.811	39.51			
940.0	930.8	0.808	34.816	27.833	37.71			
960.0	950.6	0.548	34.837	27.855	35.91			
980.0	970.4	0.288	34.858	27.877	34.11			
1000.0	990.2	0.028	34.879	27.899	32.31			
1020.0	1010.0	-0.232	34.900	27.921	30.51			
1040.0	1029.8	-0.492	34.921	27.943	28.71			
1060.0	1049.6	-0.752	34.942	27.965	26.91			
1080.0	1069.4	-1.012	34.963	27.987	25.11			
1100.0	1089.2	-1.272	34.984	28.009	23.31			
1120.0	1109.0	-1.532	35.005	28.031	21.51			
1140.0	1128.8	-1.792	35.026	28.053	19.71			
1160.0	1148.6	-2.052	35.047	28.075	17.91			
1180.0	1168.4	-2.312	35.068	28.097	16.11			
1200.0	1188.2	-2.572	35.089	28.119	14.31			
1220.0	1208.0	-2.832	35.110	28.141	12.51			
1240.0	1227.8	-3.092	35.131	28.163	10.71			
1260.0	1247.6	-3.352	35.152	28.185	8.91			
1280.0	1267.4	-3.612	35.173	28.207	7.11			
1300.0	1287.2	-3.872	35.194	28.229	5.31			
1320.0	1307.0	-4.132	35.215	28.251	3.51			
1340.0	1326.8	-4.392	35.236	28.273	1.71			
1360.0	1346.6	-4.652	35.257	28.295	-0.09			
1380.0	1366.4	-4.912	35.278	28.317	-1.89			
1400.0	1386.2	-5.172	35.299	28.339	-3.69			
1420.0	1406.0	-5.432	35.320	28.361	-5.49			
1440.0	1425.8	-5.692	35.341	28.383	-7.29			
1460.0	1445.6	-5.952	35.362	28.405	-9.09			
1480.0	1465.4	-6.212	35.383	28.427	-10.89			
1500.0	1485.2	-6.472	35.404	28.449	-12.69			
1520.0	1505.0	-6.732	35.425	28.471	-14.49			
1540.0	1524.8	-6.992	35.446	28.493	-16.29			
1560.0	1544.6	-7.252	35.467	28.515	-18.09			
1580.0	1564.4	-7.512	35.488	28.537	-19.89			
1600.0	1584.2	-7.772	35.509	28.559	-21.69			
1620.0	1604.0	-8.032	35.530	28.581	-23.49			
1640.0	1623.8	-8.292	35.551	28.603	-25.29			
1660.0	1643.6	-8.552	35.572	28.625	-27.09			
1680.0	1663.4	-8.812	35.593	28.647	-28.89			
1700.0	1683.2	-9.072	35.614	28.669	-30.69			
1720.0	1703.0	-9.332	35.635	28.691	-32.49			
1740.0	1722.8	-9.592	35.656	28.713	-34.29			
1760.0	1742.6	-9.852	35.677	28.735	-36.09			
1780.0	1762.4	-10.112	35.698	28.757	-37.89			
1800.0	1782.2	-10.372	35.719	28.779	-39.69			
1820.0	1802.0	-10.632	35.740	28.801	-41.49			
1840.0	1821.8	-10.892	35.761	28.823	-43.29			
1860.0	1841.6	-11.152	35.782	28.845	-45.09			
1880.0	1861.4	-11.412	35.803	28.867	-46.89			
1900.0	1881.2	-11.672	35.824	28.889	-48.69			
1920.0	1901.0	-11.932	35.845	28.911	-50.49			
1940.0	1920.8	-12.192	35.866	28.933	-52.29			
1960.0	1940.6	-12.452	35.887	28.955	-54.09			
1980.0	1960.4	-12.712	35.908	28.977	-55.89			
2000.0	1980.2	-12.972	35.929	28.999	-57.69			

SHIP 1 HRS COOK - Primary  
STATION NUMBER 1 5 (THROUGH THE CRUISE)  
STATION NUMBER 1 5 (THROUGH THE YEAR)  
DATE 1 26-AUG-1985 (DAY NUMBER 238)  
START TIME 1 1852 GMT - 2  
CRUISE 1 CROK/85  
POSITION 1 45:17.70S 178:14.70E  
CAST DEPTH 1 2091 METRES  
BOTTOM DEPTH 1 2973 METRES

PRESS	DEPTH	TOW	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
0.0	0.0	8.783	34.327	26.665	136.55	0.000	1485.21	8.78
10.0	9.9	8.783	34.376	26.664	136.90	0.137	1485.33	8.78
20.0	19.8	8.783	34.379	26.667	136.75	0.273	1485.53	8.78
30.0	29.8	8.784	34.382	26.669	136.77	0.410	1485.70	8.78
40.0	39.7	8.784	34.378	26.666	137.22	0.547	1485.85	8.78
50.0	49.6	8.736	34.364	26.662	137.75	0.685	1485.80	8.73
60.0	59.5	8.650	34.351	26.665	137.65	0.822	1485.60	8.64
70.0	69.4	8.530	34.342	26.673	136.72	0.960	1485.34	8.52
80.0	79.3	8.423	34.340	26.690	135.63	1.096	1485.32	8.47
90.0	89.2	8.449	34.346	26.693	135.56	1.231	1485.38	8.44
100.0	99.2	8.411	34.329	26.685	136.47	1.367	1485.34	8.40
110.0	109.0	8.116	34.326	26.728	132.67	1.504	1484.53	8.10
120.0	118.8	7.966	34.373	26.787	127.30	1.641	1484.39	7.95
130.0	128.6	7.933	34.405	26.817	124.90	1.778	1484.63	7.92
140.0	138.4	7.909	34.422	26.833	123.65	1.915	1484.90	7.89
150.0	148.3	7.890	34.420	26.833	122.70	2.052	1485.01	7.83
160.0	158.1	7.738	34.433	26.871	120.72	2.189	1484.87	7.72
170.0	167.9	7.645	34.427	26.873	120.75	2.326	1484.91	7.64
180.0	177.7	7.572	34.420	26.881	120.31	2.463	1484.94	7.55
190.0	187.5	7.516	34.420	26.889	119.81	2.600	1484.96	7.49
200.0	197.3	7.432	34.417	26.899	119.14	2.737	1484.96	7.40
210.0	207.1	7.373	34.419	26.909	118.53	2.874	1485.08	7.34
220.0	216.9	7.290	34.407	26.912	118.52	3.011	1485.08	7.26
230.0	226.7	7.200	34.409	26.925	117.47	3.148	1485.05	7.17
240.0	236.5	7.112	34.398	26.929	117.37	3.285	1485.01	7.08
250.0	246.3	7.018	34.401	26.945	116.10	3.422	1484.97	6.98
260.0	256.1	6.922	34.385	26.946	116.23	3.559	1484.95	6.88
270.0	265.9	6.804	34.389	26.955	114.62	3.696	1484.76	6.76
280.0	275.7	6.718	34.389	26.976	113.72	3.833	1484.77	6.68
290.0	285.5	6.607	34.381	26.985	113.12	3.970	1484.64	6.56
300.0	295.3	6.454	34.366	26.993	112.45	4.107	1484.33	6.41
310.0	305.1	6.268	34.354	27.019	108.30	4.244	1483.46	6.26
320.0	314.9	6.062	34.342	27.070	105.63	4.381	1482.96	6.05
330.0	324.7	5.835	34.325	27.155	97.57	4.518	1481.22	5.82
340.0	334.5	5.588	34.311	27.219	91.30	4.655	1479.91	5.62
350.0	344.3	5.319	34.354	27.300	83.70	4.792	1479.74	5.37
360.0	354.1	5.029	34.362	27.355	78.16	4.929	1479.26	5.16
370.0	363.9	4.718	34.401	27.403	73.03	5.066	1480.08	4.97
380.0	373.7	4.389	34.484	27.467	66.13	5.203	1481.07	4.77
390.0	383.5	4.042	34.525	27.531	62.26	5.340	1482.21	4.53
400.0	393.3	3.688	34.557	27.570	58.72	5.477	1483.23	4.27
410.0	403.1	3.328	34.587	27.601	56.12	5.614	1484.40	4.00
420.0	412.9	2.963	34.620	27.633	53.42	5.751	1485.90	3.71
430.0	422.7	2.593	34.640	27.653	51.84	5.888	1487.41	3.42
440.0	432.5	2.218	34.671	27.684	49.19	6.025	1488.82	3.13
450.0	442.3	1.838	34.693	27.706	47.38	6.162	1490.25	2.84
460.0	452.1	1.453	34.706	27.721	46.17	6.299	1491.68	2.55
470.0	461.9	1.063	34.723	27.737	45.06	6.436	1493.24	2.26
480.0	471.7	0.668	34.727	27.746	44.34	6.573	1494.64	1.97
490.0	481.5	0.268	34.733	27.754	43.74	6.710	1496.13	1.68
500.0	491.3	0.000	34.740	27.756	42.87	6.847	1497.50	1.39
510.0	501.1	0.000	34.745	27.770	41.40	6.984	1498.75	1.10
520.0	510.9	0.000	34.750	27.785	40.87	7.121	1500.26	0.81
530.0	520.7	0.000	34.742	27.784	40.87	7.258	1501.44	0.52
540.0	530.5	0.000	34.716	27.775	39.43	7.395	1502.96	0.23
550.0	540.3	0.000	34.716	27.801	38.76	7.532	1504.26	0.00
560.0	550.1	0.000	34.742	27.800	38.80	7.669	1504.80	0.00

SHIP 1 HRS COOK - Primary  
STATION NUMBER 1 6 (THROUGH THE CRUISE)  
STATION NUMBER 1 6 (THROUGH THE YEAR)  
DATE 1 28-AUG-1985 (DAY NUMBER 240)  
START TIME 1 0601 GMT - 2  
CRUISE 1 CROK/85  
POSITION 1 41:59.00S 175:57.00E  
CAST DEPTH 1 2783 METRES  
BOTTOM DEPTH 1 3909 METRES

PRESS	DEPTH	TOW	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
0.0	0.0	12.756	35.120	26.536	148.82	0.000	1500.08	12.75
10.0	9.9	12.755	35.114	26.530	149.58	0.149	1500.20	12.75
20.0	19.8	12.748	35.120	26.537	149.20	0.299	1500.38	12.75
30.0	29.8	12.750	35.119	26.535	149.63	0.448	1500.53	12.75
40.0	39.7	12.756	35.114	26.531	150.34	0.598	1500.70	12.75
50.0	49.6	12.758	35.121	26.536	150.12	0.748	1500.87	12.75
60.0	59.5	12.758	35.115	26.531	150.83	0.899	1501.03	12.75
70.0	69.4	12.758	35.118	26.534	150.85	1.050	1501.19	12.75
80.0	79.4	12.758	35.117	26.533	151.19	1.201	1501.40	12.75
90.0	89.3	12.758	35.124	26.538	150.91	1.352	1501.55	12.75
100.0	99.2	12.758	35.125	26.538	151.16	1.503	1501.71	12.74
110.0	109.0	12.760	35.123	26.537	151.84	1.654	1501.86	12.74
120.0	118.8	12.758	35.126	26.540	152.09	1.805	1502.02	12.74
130.0	128.6	12.768	35.125	26.537	152.90	1.956	1502.17	12.75
140.0	138.4	12.753	35.132	26.545	152.59	2.107	1502.32	12.73
150.0	148.3	12.758	35.137	26.552	152.48	2.258	1502.47	12.73
160.0	158.1	11.947	35.012	26.609	147.26	2.409	1502.62	11.92
170.0	167.9	11.742	34.977	26.621	146.58	2.560	1502.77	11.71
180.0	177.7	11.478	34.927	26.631	145.90	2.711	1502.92	11.49
190.0	187.5	11.021	34.856	26.660	143.44	2.862	1503.07	10.99
200.0	197.3	10.674	34.831	26.703	139.63	3.013	1503.22	10.49
210.0	207.1	10.554	34.832	26.725	137.97	3.164	1503.37	10.52
220.0	216.9	10.335	34.810	26.746	136.31	3.315	1503.52	10.29
230.0	226.7	10.122	34.779	26.759	135.34	3.466	1503.67	10.06
240.0	236.5	9.760	34.726	26.779	133.55	3.617	1503.82	9.72
250.0	246.3	9.602	34.708	26.791	132.70	3.768	1503.97	9.56
260.0	256.1	9.295	34.681	26.805	131.65	3.919	1504.12	9.35
270.0	265.9	8.996	34.665	26.825	129.98	4.070	1504.27	9.15
280.0	275.7	8.697	34.663	26.850	127.85	4.221	1504.42	8.98
290.0	285.5	8.478	34.646	26.862	126.37	4.372	1504.57	8.81
300.0	295.3	8.259	34.632	26.867	126.71	4.523	1504.72	8.64
310.0	305.1	8.040	34.593	26.902	123.08	4.674	1504.87	8.29
320.0	314.9	7.821	34.574	26.928	122.05	4.825	1505.02	8.02
330.0	324.7	7.449	34.521	26.978	118.06	4.976	1505.17	7.38
340.0	334.5	6.925	34.491	27.029	114.05	5.127	1505.32	6.85
350.0	344.3	6.428	34.474	27.082	109.58	5.278	1505.47	6.34
360.0	354.1	5.843	34.456	27.143	103.96	5.429	1505.62	5.75
370.0	363.9	5.259	34.452	27.215	96.93	5.580	1505.77	5.13
380.0	373.7	4.650	34.414	27.299	88.80	5.731	1505.92	4.55
390.0	383.5	4.046	34.505	27.374	81.30	5.882	1506.07	4.07
400.0	393.3	3.433	34.523	27.424	76.42	6.033	1506.22	3.73
410.0	403.1	2.821	34.545	27.477	71.13	6.184	1506.37	3.37
420.0	412.9	2.208	34.570	27.546	63.76	6.335	1506.52	2.91
430.0	422.7	1.595	34.610	27.603	57.66	6.486	1506.67	2.55
440.0	432.5	1.000	34.627	27.634	54.49	6.637	1506.82	2.14
450.0	442.3	0.417	34.639	27.635	52.57	6.788	1506.97	1.71
460.0	452.1	0.000	34.640	27.640	51.60	6.939	1507.12	1.29
470.0	461.9	0.000	34.652	27.681	50.14	7.090	1507.27	0.87
480.0	471.7	0.000	34.669	27.702	48.22	7.241	1507.42	0.45
490.0	481.5	0.000	34.676	27.712	47.35	7.392	1507.57	0.03
500.0	491.3	0.000	34.693	27.730	45.82	7.543	1507.72	0.00
510.0	501.1	0.000	34.699	27.739	45.09	7.694	1507.87	0.00
520.0	510.9	0.000	34.705	27.752	43.89	7.845	1508.02	0.00
530.0	520.7	0.000	34.715	27.763	42.90	7.996	1508.17	0.00
540.0	530.5	0.000	34.742	27.791	40.02	8.147	1508.32	0.00
550.0	540.3	0.000	34.746	27.796	39.51	8.298	1508.47	0.00

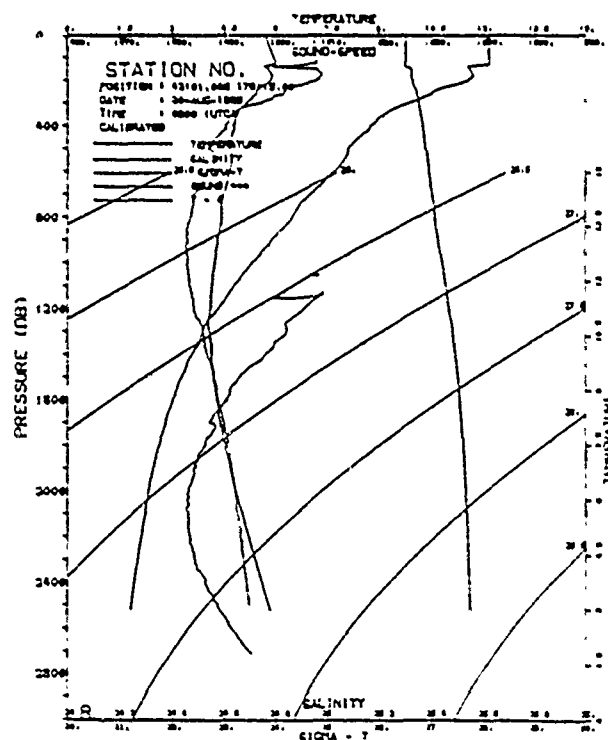
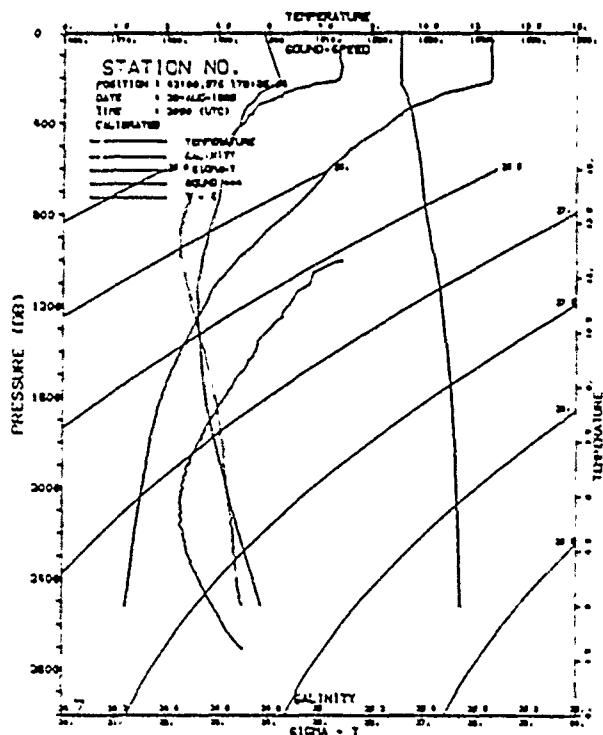


SHIP : HNS COOK - Plessey  
 STATION NUMBER : 7 (THROUGH THE CRUISE)  
 STATION NUMBER : 7 (THROUGH THE YEAR)  
 DATE : 29-AUG-1985 (DAY NUMBER 241)  
 START TIME : 2050 GMT - 5  
 CRUISE : C105-85  
 POSITION : 2100.575 17 11.31W  
 CAST DEPTH : 2480 METRES  
 BOTTOM DEPTH : 2556 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
0.0	0.0	12.455	35.096	26.567	145.87	0.000	1498.90	12.46
10.0	9.9	12.470	35.091	26.562	146.61	0.146	1498.98	12.47
20.0	19.8	12.475	35.079	26.559	147.12	0.293	1499.17	12.47
30.0	29.8	12.475	35.081	26.561	147.21	0.440	1499.34	12.47
40.0	39.7	12.475	35.080	26.560	147.58	0.588	1499.48	12.47
50.0	49.6	12.475	35.081	26.561	147.70	0.735	1499.66	12.47
60.0	59.5	12.475	35.083	26.562	147.85	0.883	1499.84	12.47
70.0	69.4	12.475	35.086	26.564	147.88	1.031	1500.02	12.47
80.0	79.4	12.479	35.081	26.560	148.60	1.179	1500.17	12.47
90.0	89.3	12.483	35.079	26.558	149.04	1.328	1500.34	12.47
100.0	99.2	12.481	35.084	26.561	148.93	1.477	1500.49	12.47
110.0	109.0	12.485	35.080	26.558	149.76	1.776	1500.84	12.47
120.0	118.9	12.485	35.082	26.563	149.78	2.076	1501.12	12.47
130.0	128.8	12.485	35.080	26.561	150.24	2.375	1501.45	12.46
140.0	138.7	12.493	35.085	26.560	151.12	2.672	1501.82	12.47
150.0	148.6	12.494	35.083	26.558	151.79	2.980	1502.15	12.47
160.0	158.5	12.494	35.059	26.551	152.92	3.284	1502.20	12.41
170.0	168.4	11.896	34.964	26.593	149.24	3.589	1500.36	11.81
180.0	178.3	11.299	34.885	26.613	145.63	3.896	1498.67	11.23
190.0	188.2	10.935	34.857	26.676	141.86	4.174	1497.79	10.90
200.0	198.1	10.672	34.815	26.691	140.81	4.457	1497.14	10.64
210.0	208.0	10.295	34.762	26.716	138.64	4.737	1496.06	10.26
220.0	217.9	10.030	34.753	26.754	135.28	5.010	1495.45	9.99
230.0	227.8	9.852	34.743	26.777	133.46	5.279	1495.15	9.81
240.0	237.7	9.658	34.722	26.793	132.15	5.545	1494.72	9.61
250.0	247.6	9.513	34.710	26.808	131.06	5.809	1494.51	9.47
260.0	257.5	9.348	34.686	26.816	130.52	6.070	1494.19	9.20
270.0	267.4	9.110	34.667	26.810	128.46	6.339	1493.63	8.96
280.0	277.3	8.900	34.646	26.858	127.01	6.585	1493.14	8.74
290.0	287.2	8.599	34.670	26.877	125.41	6.817	1492.73	8.45
300.0	297.1	8.558	34.615	26.887	124.68	7.087	1492.49	8.50
310.0	307.0	8.166	34.582	26.921	121.94	7.702	1491.82	8.11
320.0	316.9	7.774	34.548	26.952	119.36	8.305	1491.10	7.71
330.0	326.8	7.242	34.510	26.925	115.82	8.480	1490.43	7.17
340.0	336.7	6.546	34.470	27.051	110.14	10.610	1489.49	6.47
350.0	346.6	5.782	34.450	27.153	101.63	11.566	1488.12	5.71
360.0	356.5	5.091	34.450	27.243	92.90	12.613	1486.96	5.01
370.0	366.4	4.494	34.493	27.322	85.15	13.535	1486.16	4.41
380.0	376.3	4.125	34.501	27.376	80.09	14.358	1486.30	4.03
390.0	386.2	3.775	34.520	27.414	74.51	15.129	1486.50	3.68
400.0	396.1	3.411	34.554	27.489	69.11	15.850	1486.74	3.33
410.0	406.0	3.125	34.574	27.531	64.62	16.520	1487.12	3.02
420.0	415.9	2.814	34.595	27.578	60.68	17.145	1487.75	2.76
430.0	425.8	2.693	34.609	27.601	57.98	17.735	1488.61	2.57
440.0	435.7	2.525	34.627	27.629	55.20	18.301	1489.58	2.40
450.0	445.6	2.411	34.630	27.640	54.30	18.846	1490.84	2.30
460.0	455.5	2.358	34.646	27.663	52.08	19.378	1492.01	2.17
470.0	465.4	2.189	34.658	27.683	50.18	19.892	1493.20	2.04
480.0	475.3	2.096	34.665	27.696	48.95	20.388	1494.47	1.94
490.0	485.2	2.020	34.674	27.710	47.64	20.870	1495.84	1.86
500.0	495.1	1.943	34.684	27.728	46.29	21.339	1497.19	1.77
510.0	505.0	1.852	34.690	27.741	44.61	21.794	1498.50	1.67
520.0	514.9	1.825	34.708	27.751	43.61	22.083	1499.71	1.65

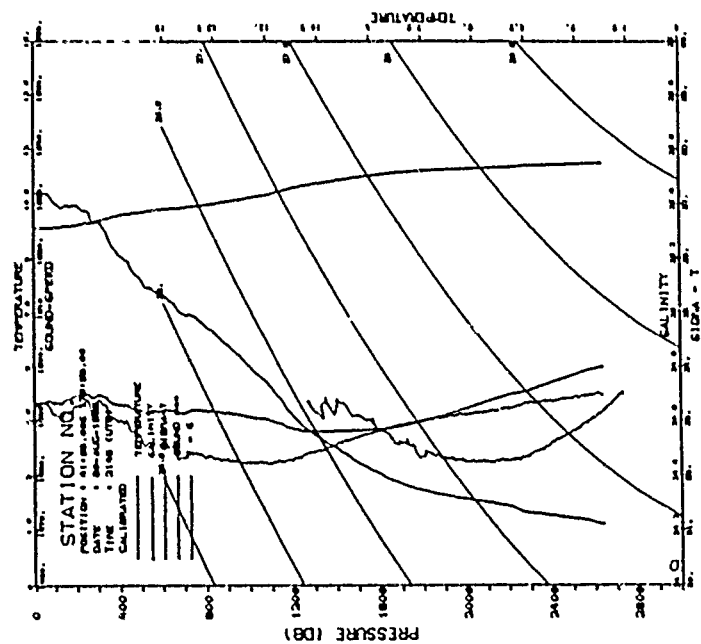
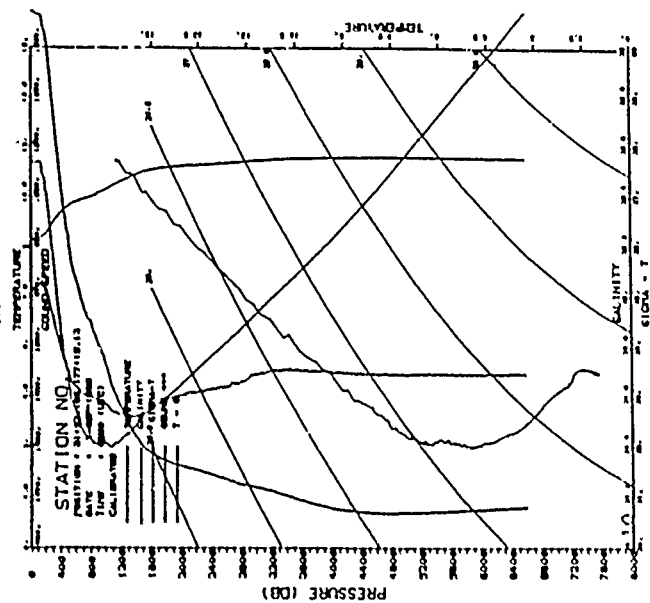
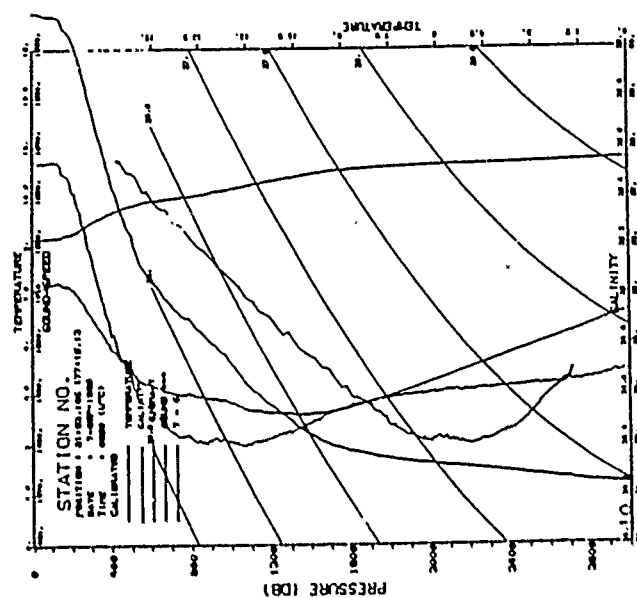
SHIP : HNS COOK - Plessey  
 STATION NUMBER : 8 (THROUGH THE CRUISE)  
 STATION NUMBER : 8 (THROUGH THE YEAR)  
 DATE : 30-AUG-1985 (DAY NUMBER 242)  
 START TIME : 0900 GMT - 5  
 CRUISE : C105-85  
 POSITION : 42101.005 178115.00E  
 CAST DEPTH : 2473 METRES  
 BOTTOM DEPTH : 2645 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
0.0	0.0	12.161	34.955	26.523	149.99	0.000	1497.94	12.16
10.0	9.9	12.161	34.954	26.523	150.30	0.150	1498.07	12.16
20.0	19.8	12.161	34.954	26.523	150.52	0.301	1498.24	12.16
30.0	29.8	12.161	34.955	26.524	150.70	0.451	1498.39	12.16
40.0	39.7	12.162	34.955	26.524	150.96	0.602	1498.58	12.16
50.0	49.6	12.165	34.955	26.523	151.25	0.753	1498.74	12.16
60.0	59.5	12.171	34.952	26.522	151.66	0.905	1498.93	12.16
70.0	69.4	12.177	34.955	26.521	151.97	1.056	1499.09	12.17
80.0	79.4	12.181	34.954	26.519	152.36	1.209	1499.27	12.17
90.0	89.3	12.181	34.960	26.524	152.21	1.361	1499.43	12.17
100.0	99.2	12.181	34.957	26.522	152.66	1.513	1499.59	12.17
110.0	109.0	12.213	34.968	26.524	152.94	1.819	1500.04	12.20
120.0	118.9	11.540	34.970	26.516	154.90	2.127	1497.16	11.52
130.0	128.8	11.611	34.971	26.630	143.75	2.419	1498.96	11.65
140.0	138.7	11.739	34.981	26.625	144.75	2.707	1499.38	11.72
150.0	148.6	11.566	34.963	26.643	143.40	2.995	1499.05	11.54
160.0	158.5	11.172	34.899	26.666	141.55	3.280	1497.92	11.14
170.0	168.4	10.892	34.845	26.710	137.62	3.561	1496.56	10.46
180.0	178.3	10.502	34.830	26.733	135.87	3.843	1496.20	10.47
190.0	188.2	10.202	34.790	26.753	134.19	4.104	1495.40	10.17
200.0	198.1	9.853	34.744	26.777	132.15	4.371	1494.42	9.82
210.0	208.0	9.465	34.669	26.783	131.75	4.635	1493.24	9.43
220.0	217.9	9.225	34.617	26.805	129.90	4.897	1492.71	9.19
230.0	227.8	9.029	34.622	26.818	128.98	5.156	1492.28	8.99
240.0	237.7	8.907	34.622	26.837	127.46	5.412	1492.15	8.87
250.0	247.6	8.763	34.608	26.848	126.72	5.666	1491.92	8.72
260.0	257.5	8.695	34.601	26.856	126.27	5.919	1491.93	8.64
270.0	267.4	8.506	34.587	26.873	124.88	6.170	1491.58	8.46
280.0	277.3	8.364	34.564	26.876	124.75	6.420	1491.34	8.32
290.0	287.2	8.239	34.556	26.889	123.77	6.668	1491.20	8.19
300.0	297.1	8.124	34.543	26.897	123.31	6.916	1491.01	8.07
310.0	307.0	7.998	34.567	26.934	120.48	7.232	1491.43	7.94
320.0	316.9	7.711	34.536	26.952	119.76	7.521	1491.10	7.65
330.0	326.8	7.513	34.541	27.013	114.19	7.855	1489.87	7.35
340.0	336.7	6.889	34.476	27.075	108.93	10.391	1489.56	6.41
350.0	346.6	5.882	34.458	27.147	102.30	11.453	1489.80	5.80
360.0	356.5	5.104	34.465	27.216	95.92	12.450	1489.05	5.22
370.0	366.4	4.780	34.473	27.283	89.53	13.379	1489.50	4.59
380.0	376.3	4.327	34.492	27.348	83.26	14.244	1489.19	4.23
390.0	386.2	3.895	34.524	27.418	76.35	15.037	1489.28	3.79
400.0	396.1	3.465	34.541	27.465	71.46	15.761	1489.55	3.46
410.0	406.0	3.273	34.561	27.511	67.22	16.475	1489.78	3.16
420.0	415.9	3.024	34.580	27.550	63.14	17.126	1489.82	2.79
430.0	425.8	2.809	34.606	27.588	59.62	17.741	1489.40	2.69
440.0	435.7	2.626	34.617	27.613	57.16	18.324	1489.28	2.50
450.0	445.6	2.446	34.636	27.643	54.31	18.880	1491.20	2.31
460.0	455.5	2.314	34.650	27.666	51.87	19.411	1492.30	2.12
470.0	465.4	2.221	34.651	27.678	50.68	19.925	1493.61	2.01
480.0	475.3	2.113	34.666	27.695	49.11	20.421	1494.83	1.96
490.0	485.2	2.033	34.680	27.714	47.25	20.901	1496.13	1.85
500.0	495.1	1.921	34.694	27.732	45.46	21.365	1497.40	1.75
510.0	505.0	1.835	34.703	27.747	44.02	21.813	1498.72	1.66
520.0	514.9	1.819	34.707	27.751	43.61	21.900	1499.94	1.64



### Seamap 2 - Route B - Winter





Listings of Niskin bottle/rosette samples taken for VCTOD stations 1 to 9. SEAMAP 2 (RANRL 6/85) winter survey route B.

[illegible]

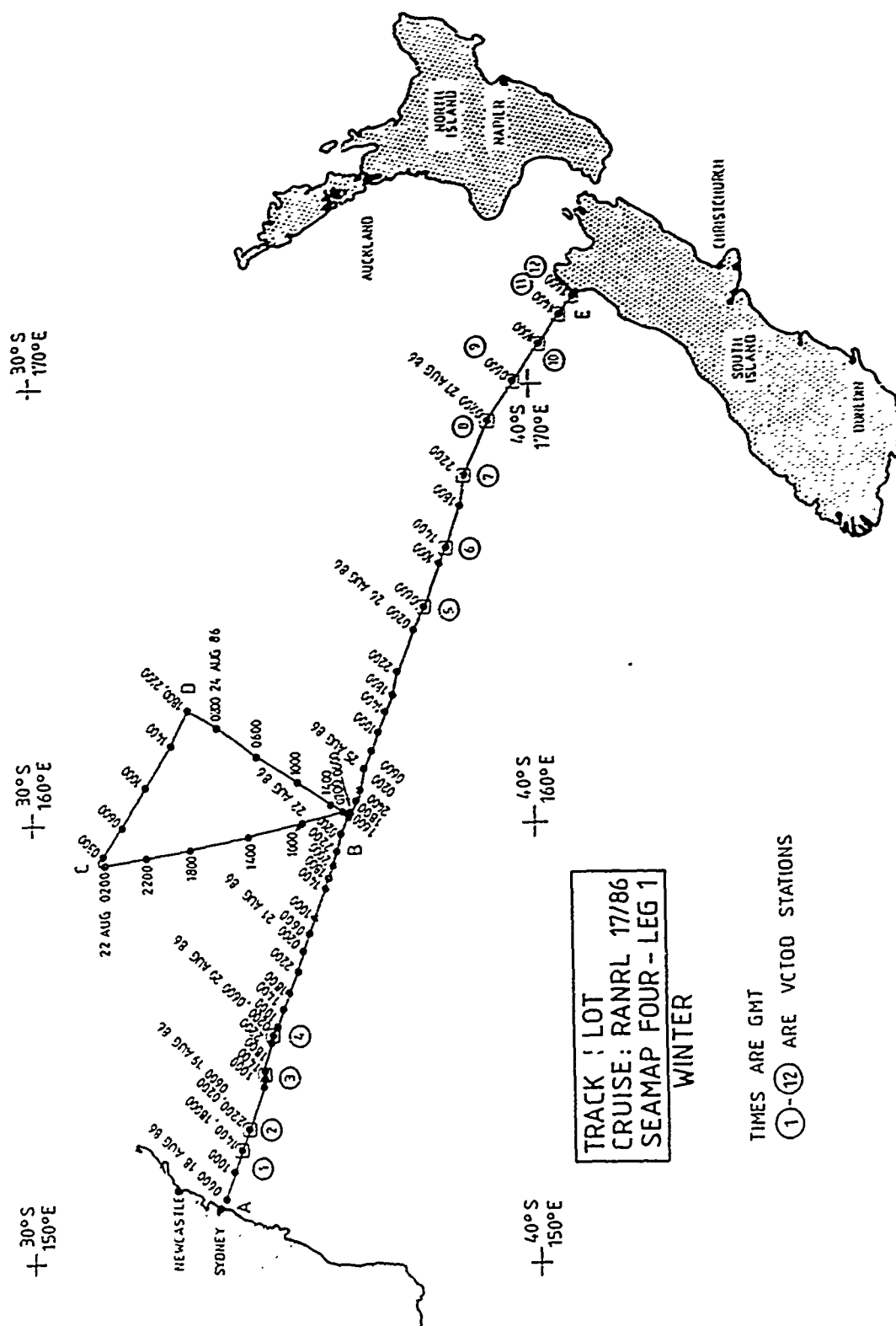


Figure 73. Track plot and oceanographic station positions for SEAMAP four (RANRL 17/86). Leg one winter survey on route B in the south west Pacific Ocean, 18 to 27 August 1986

**Data for SEAMAP survey four (RANRL 17/86) - route B - winter**

Survey SEAMAP 4 was made in south hemispheric winter from Sydney to Cook Strait and return (figures 73 and 85) from 18 August to 9 September 1986. Acoustic and geophysical data for the survey are given in other sources (see Appendix I). Survey SEAMAP 4 (or RANRL 17/86) was the fourth of the SEAMAP cruise series made by Ocean Sciences Group RANRL on the naval oceanographic research vessel HMAS Cook.

*Surface parameters*

*Sea state, swell height, and wind vectors*

Four-hourly observations made by bridge watchkeepers are shown in figures 75, 76 and 86, 87 these being a subset of hourly values. Table 1 (on page 5) shows the sea conditions associated with the sea state values. Swell on leg 1 was often 2 to 3 m, and usually less than 2 m on leg 2. Sea states 3 and 4 were common on leg 1 (slight to moderate seas). Wind strengths on leg 2 ranged up to 26 kn, being mostly less than 20 kn on leg 1. Sea state 4 was common on leg 2 with sea state 5 on leaving New Zealand (moderate to rough seas).

Text continued on page 148

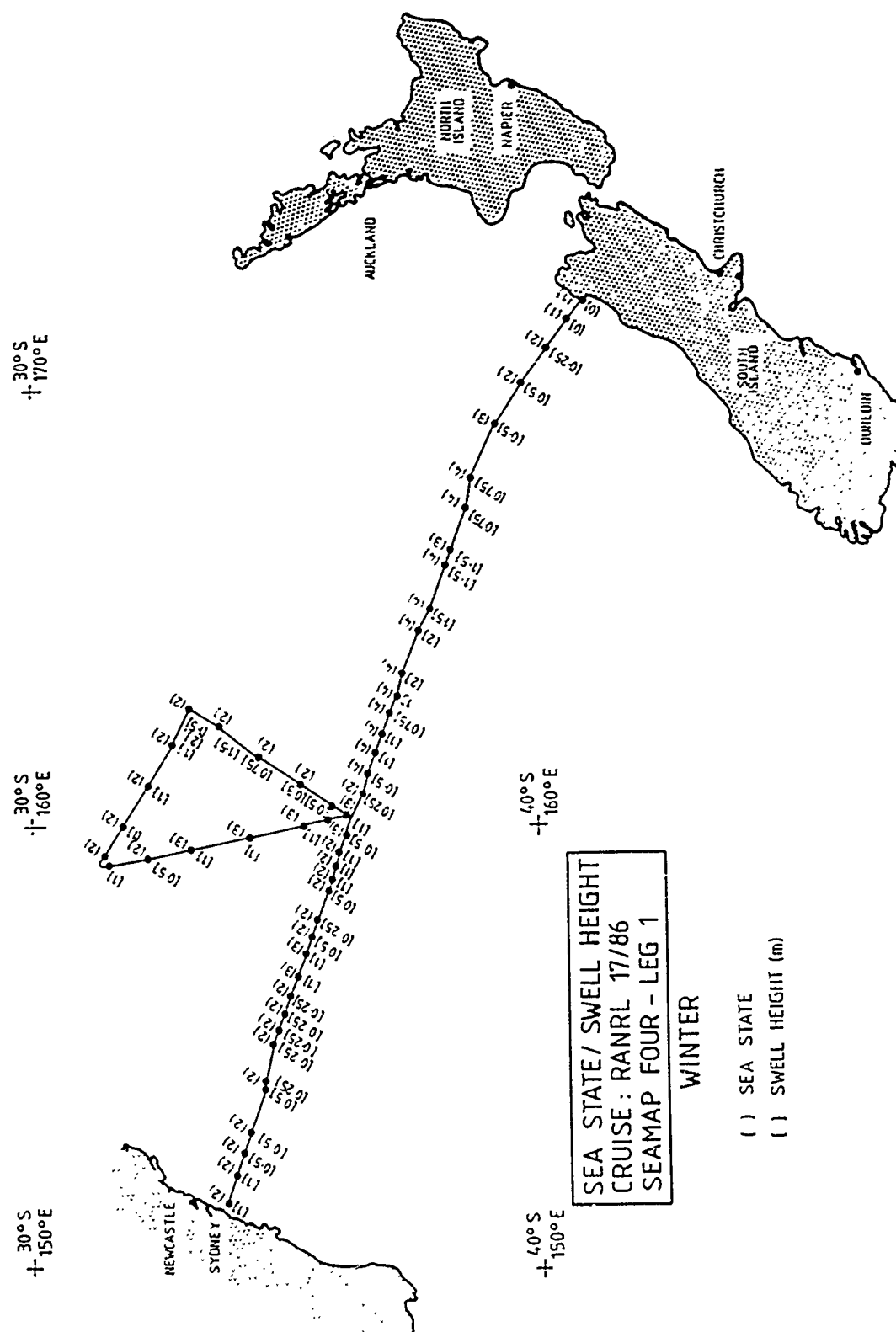


Figure 74. Sea state and swell height for SEAMAP route B in winter 1986 on survey SEAMAP 4 (RANRL 17/86)

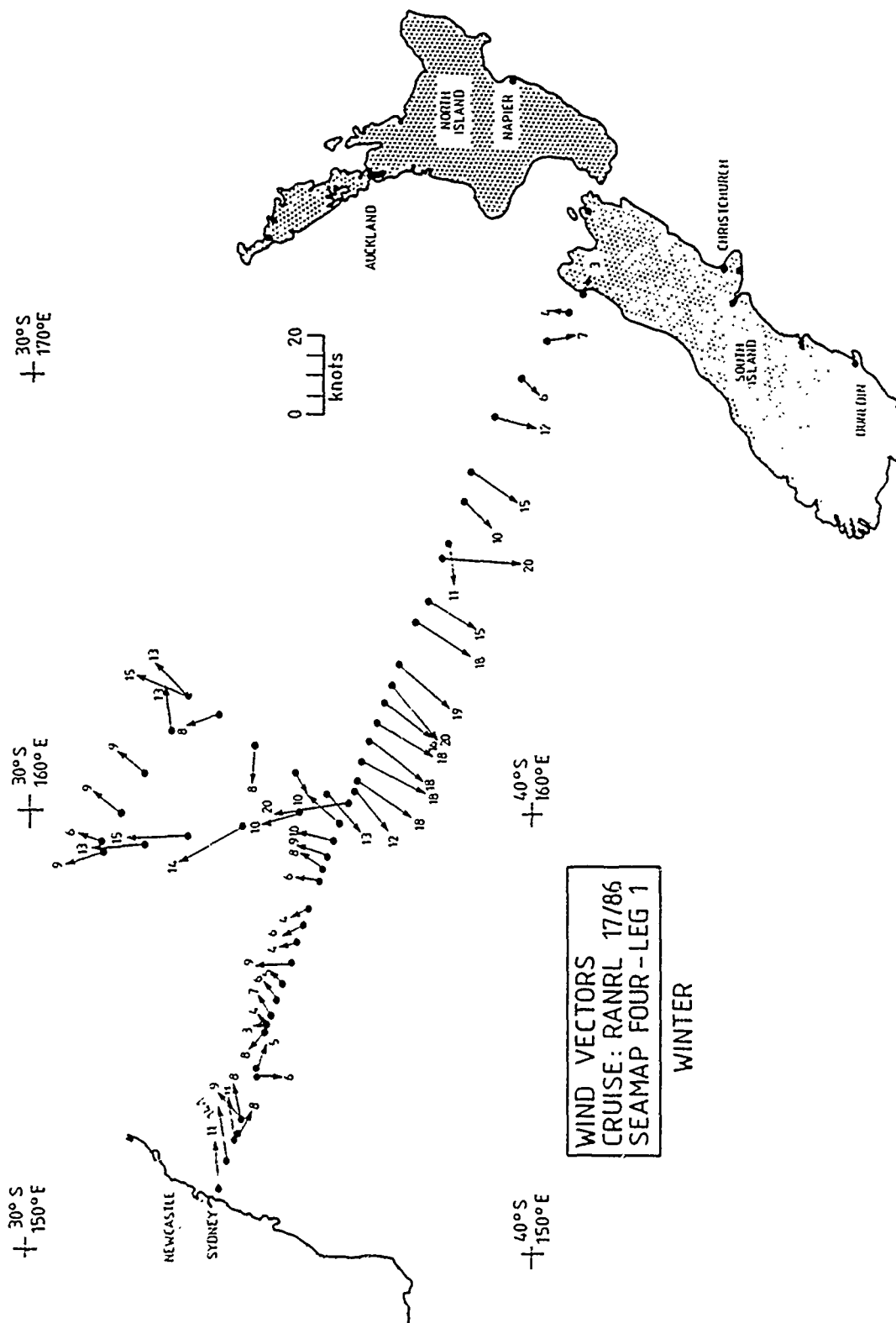


Figure 75. Wind vectors for SEAMAP route B in winter 1986 on survey SEAMAP 4 (RANRL 17/86)

*Surface temperature and salinity*

## Sea Surface temperature (SST) (figures 76 and 88)

On both legs a front is crossed east of Sydney and frontal activity is seen from Sydney to 160°E. East of 160°E surface temperatures became fairly uniform, with coolest temperatures occurring off New Zealand. SST contours on leg 1 turn north along the western flank of the Lord Howe Rise. A cloud affected infra-red image from CSIRO Aspendale for 13 August (figure 77) shows the East Australian Current leaving the coast at about 34°30'S, 151°E and heading east to south-east; which confirms the speculative SST contours. A cloud affected image for 10 September (figure 89) is of some use along the track to 155°E, and shows more detail farther north. RMC Wellington satellite derived SST contours for 1 September and 8 September 1986 (figure 78) show details for 165°E to New Zealand. The general patterns along the cruise track in the RMC images show little frontal activity except perhaps off New Zealand.

## Sea surface salinity (figures 79 and 90)

Surface salinity on leg 1 is fairly uniform to 160°E ( $35.66 \pm 0.05$  PSU), with salinity decreasing from 36°30'S, 161°E to New Zealand. Bucket temperatures drop by over 2.5°C across Cook Strait, and salinity falls below 35 PSU in eastern Cook Strait. Temperature taken from a tap mounted in the thermo-salinograph input, which is lower than the hull sensors, shows strong surface cooling was occurring. Leg 2 salinity is similar to leg 1, but lower values are seen near 38°S, 167°E possibly related to northward movement of cooler southern waters into the Bellona Gap.

Text continued on page 155

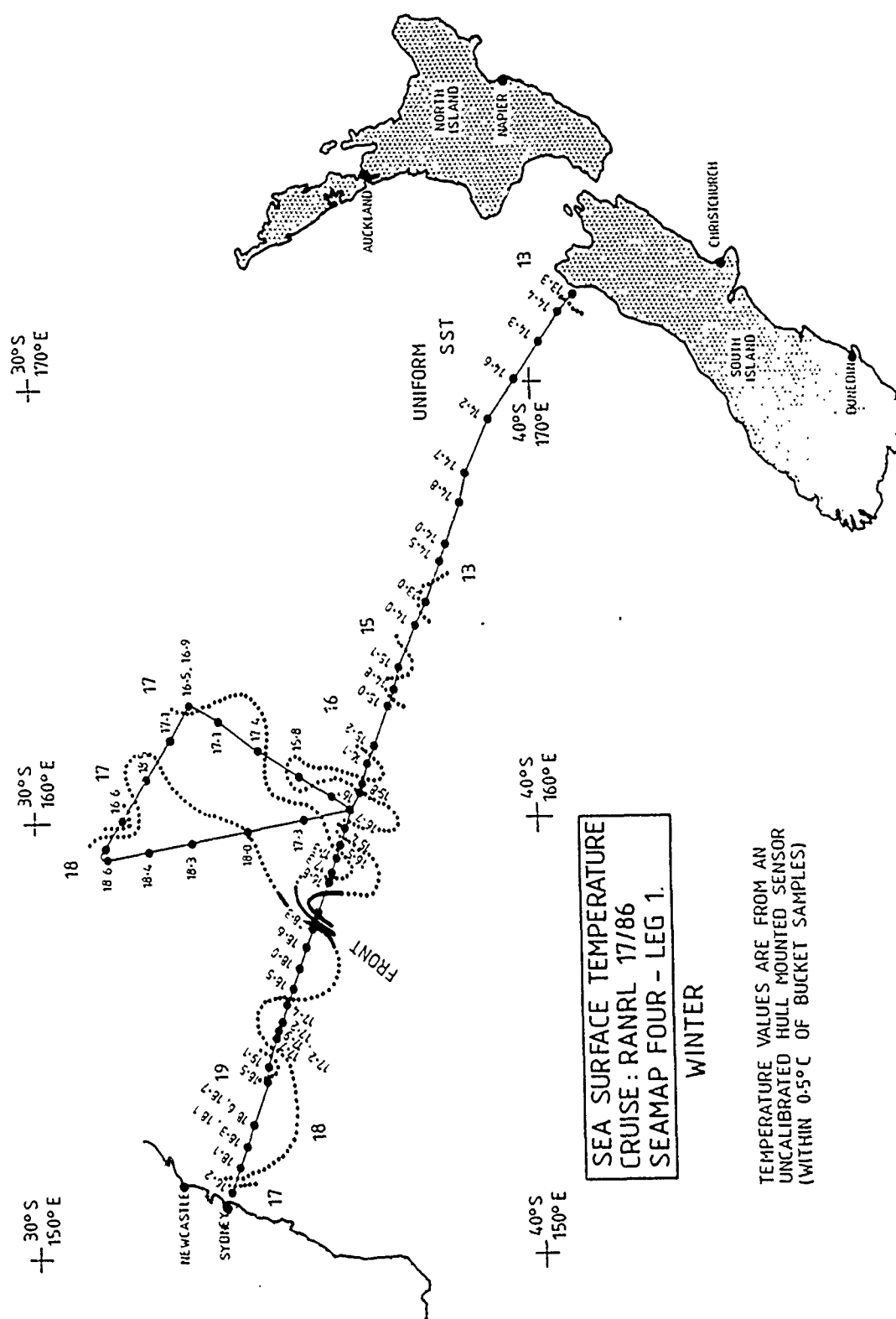


Figure 76. Sea surface temperature for SEAMAP route B in winter 1986 on survey SEAMAP 4 (RANRL 17/86). Also see figure 79 for surface bucket values



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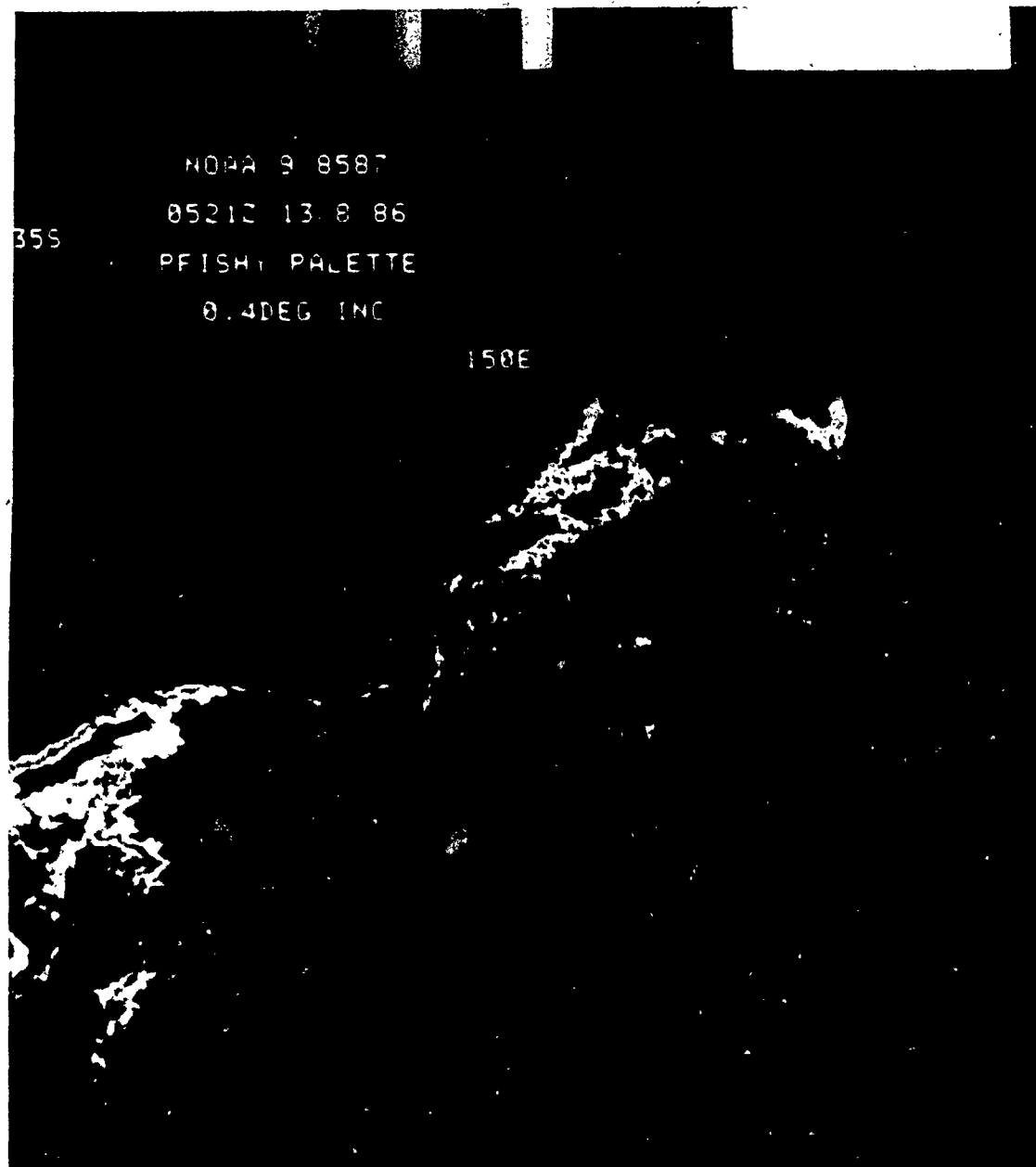


Figure 77. Sea surface temperature contours derived by CSIRO Division of Atmospheric Research, Aspendale Victoria from satellite data for 13 August 1986. Coinciding with sections of SEAMAP 4 winter survey (RANRL 17/86) route A

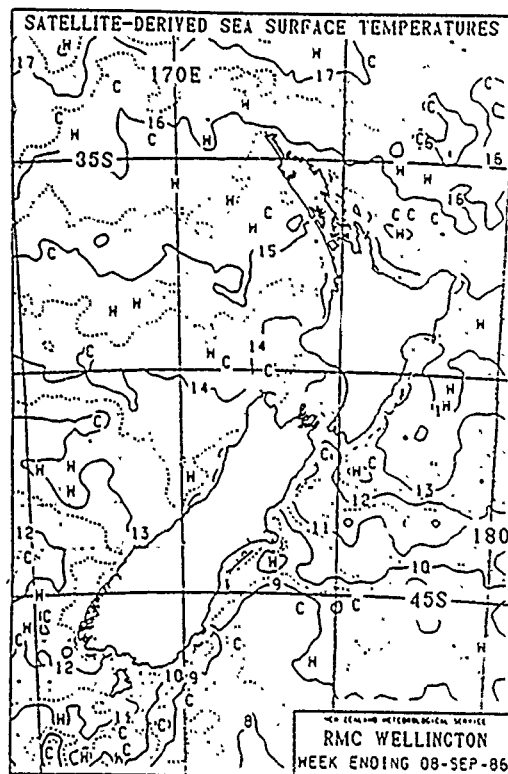
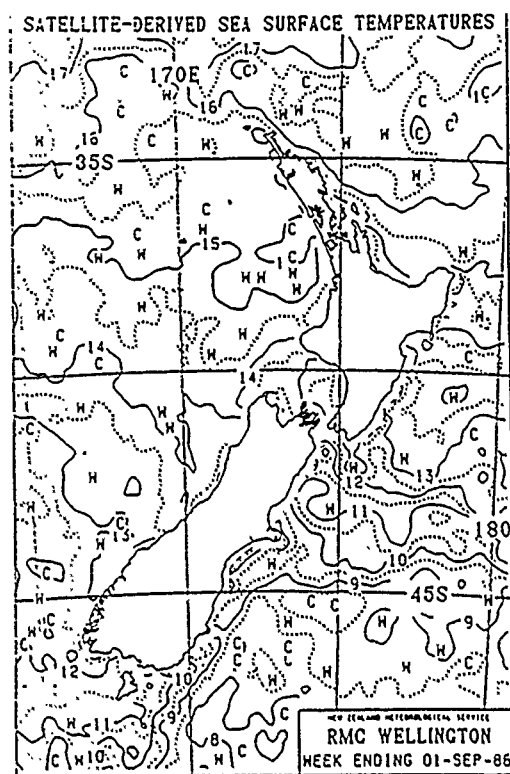


Figure 78. Sea surface temperature contours derived by Royal Meteorological Centre Wellington, New Zealand from satellite data for 1, 8 September 1986. Coinciding with SEAMAP 4 winter survey (RANRL 17/86) route A

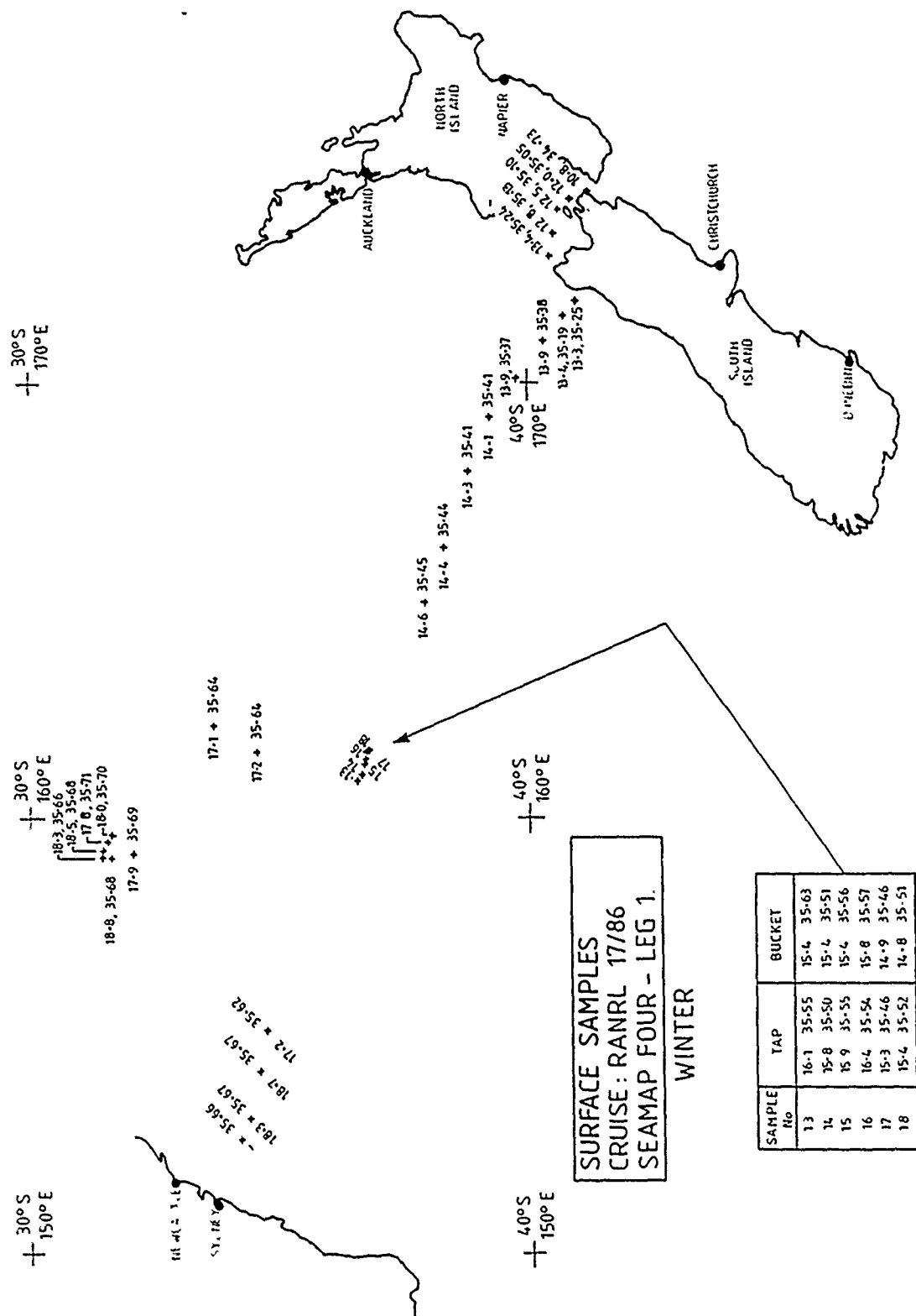


Figure 79. Sea surface salinity values for SEAMAP route B in winter 1986 on survey SEAMAP 4 (RANRL 17/86)

### *Subsurface parameters*

#### *Bathymetry*

Smoothed interpretations showing major features are shown in figures 81 and 92. Also see figure 83.

#### *XBT/Nansen/VCTOD cross-sections*

##### *XBT temperature cross-sections*

Cross-sections of XBT data are shown in figures 80, 82 and 91. Gaps occurred during periods of seismic profiling.

##### *Sydney to New Zealand (leg 1) (figure 80)*

The first meander of the EAC is crossed from Sydney to 154°E. Several warm core features are crossed from 162°E into New Zealand. These appear to be located on the western flank of a southward projecting spur of the Lord Howe Rise at 38°S, 165°E; in the Bellona gap west of the Challenger Plateau; and west of a higher area on the Challenger Plateau. There are indications of northward flow off the New Zealand coast.

##### *Lord Howe Island detour (leg 1) (figure 82)*

Warmest surface waters are situated about Lord Howe Island, and are not associated with signs of frontal activity. Contours from waypoints C to D tend to follow bottom contours. The frontal activity in SST contours near point B is also seen as subsurface features.

Text continued on page 160

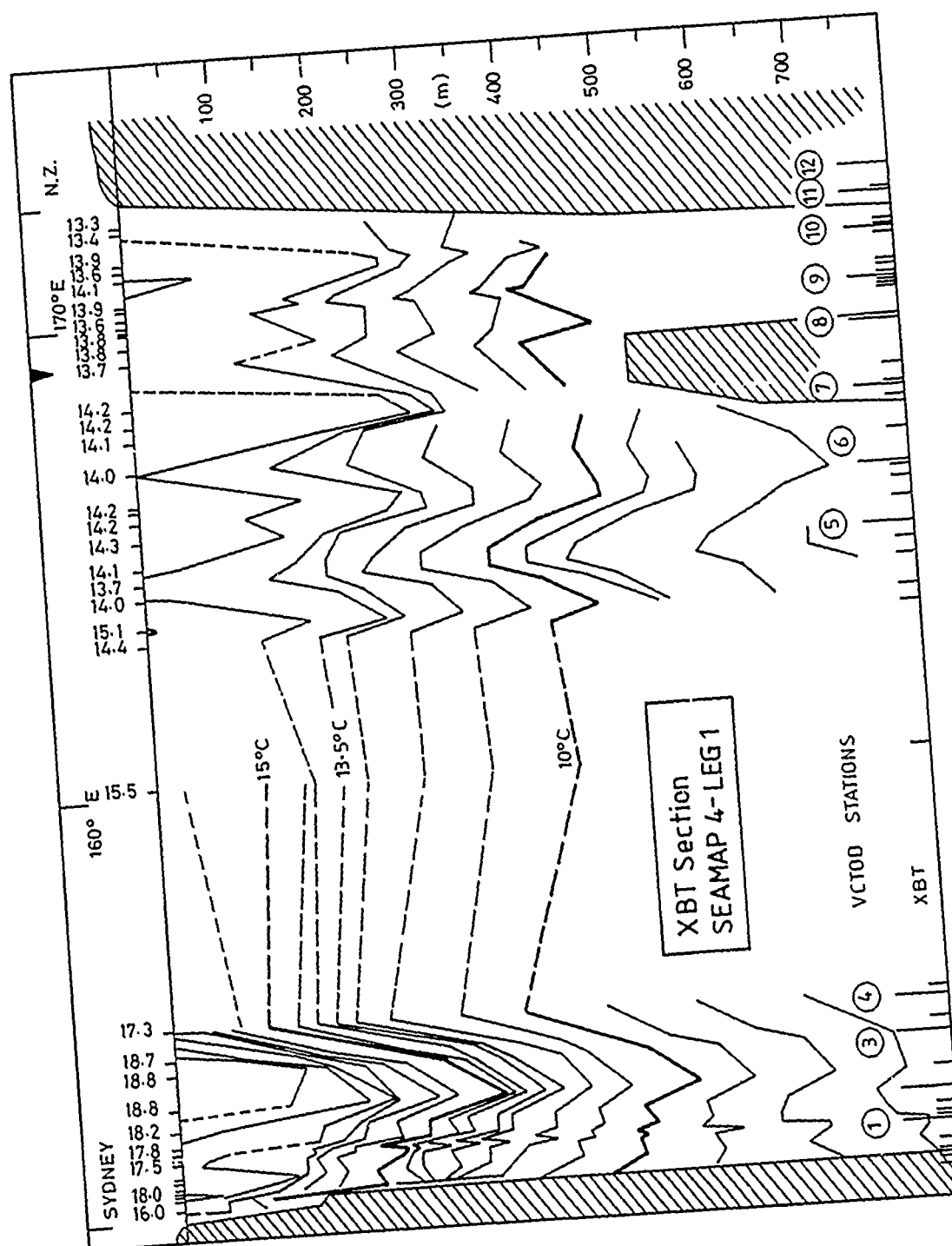
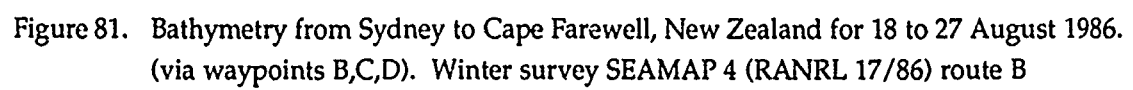


Figure 80. XBT temperature section from Sydney to Cape Farewell, New Zealand for 18 to 27 August 1986. Winter survey SEAMAP 4 (RANRL 17/86) route B



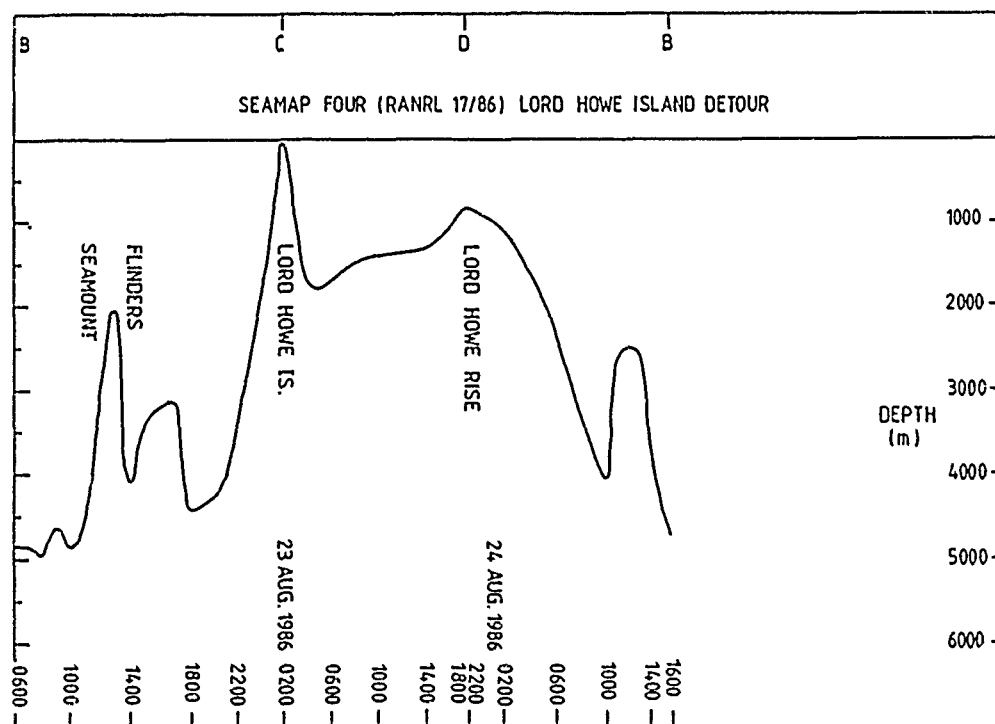
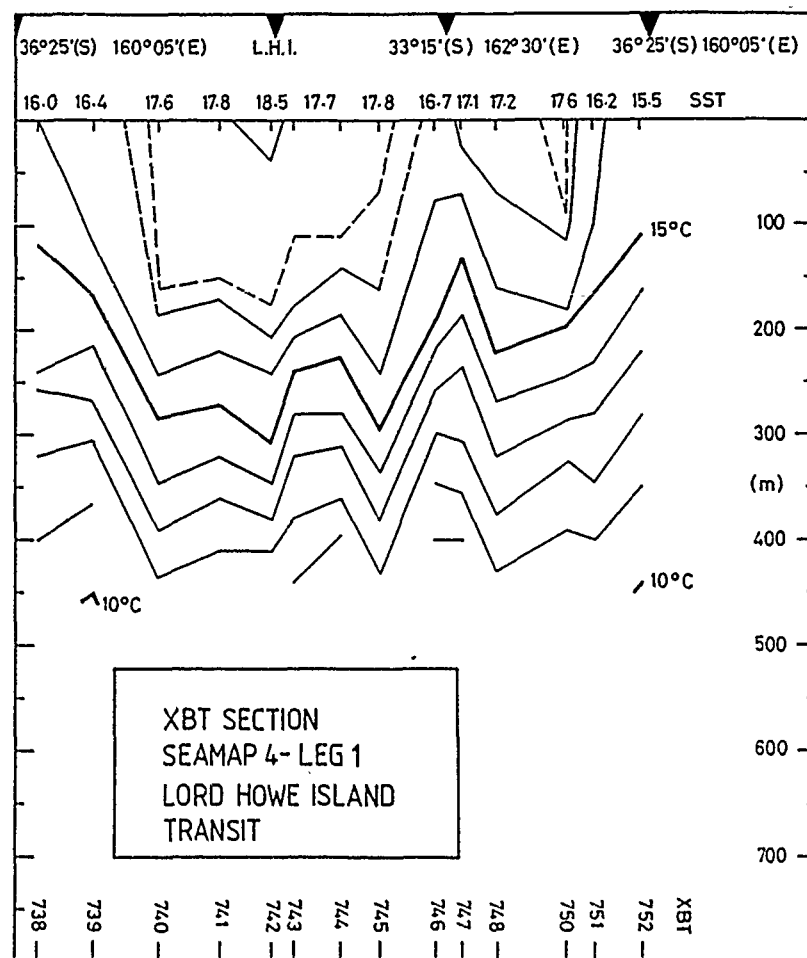


Figure 82. XBT temperature section and bathymetry from waypoint B to waypoints C and D and return to B (around Lord Howe Island). For 22 to 24 August 1986. Winter survey SEAMAP 4 (RANRL 17/86) route B



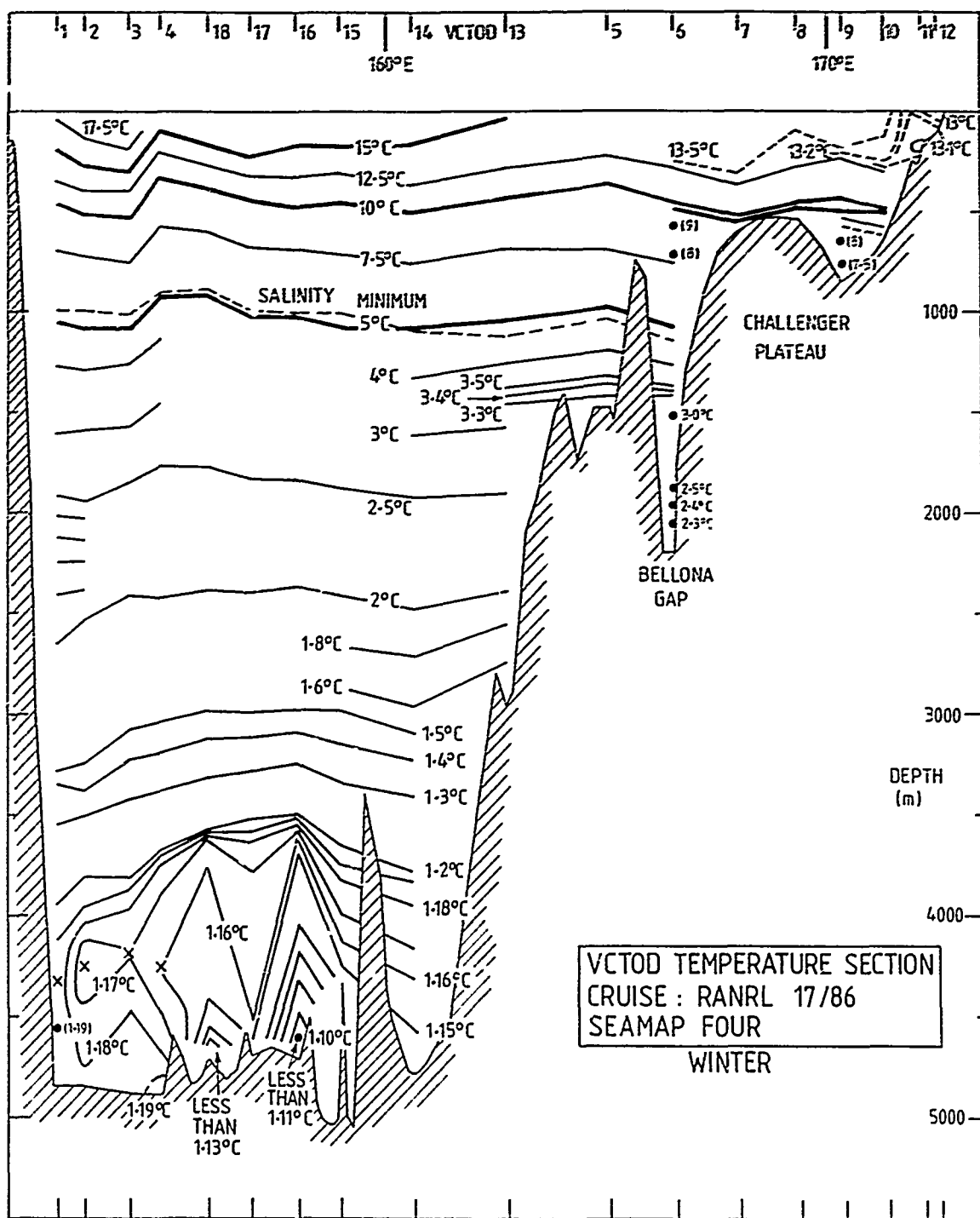


Figure 83. VCTOD temperature section from Sydney to south of Cape Farewell, New Zealand for 18 to 27 August 1986. Winter survey SEAMAP 4 (RANRL 17/86) route B. (x on the diagram marks the deep temperature minimum values, except those occurring at the bottom)

### New Zealand to Sydney (leg 2) (figure 91)

The first warm core meander of the EAC is seen from Sydney to 154°E. A second is located at 156°E, west of a seamount. A third is sited south of two seamounts over a deep hole at 160°E. Warmer surface waters to 40 m at 162°30'E are south of a spur of the Lord Howe Rise, but do not have marked subsurface expression. A slightly warmer feature is sited at 169°30'E, but is poorly defined.

### VCTOD temperature and salinity sections

A VCTOD temperature section formed from stations taken on both legs is shown in figure 83. Antarctic Bottom Water (AABW) is seen at several sites from the Tasman Abyssal Plain to the base of the Lord Howe Rise. Coldest temperature is just on 1.10°C for station 16. The rather complicated patterns shown by the AABW will be left for more detailed analysis in subsequent reports. The AABW has been seen on other RANRL cruises besides the SEAMAP series. Some other observations are given in Mulhearn, Hamilton, and Scott (1988). The temperature at stations 11 and 12 increases with depth, leading to a maximum temperature at the bottom of the cast (230 m) for station 11 and at about 150 m for station 12. Isotherms between stations 9 and 10 slope upwards to the east to about 200 m, and slope downwards below this to the limits of the casts.

The inner glass sleeve of the conductivity sensor was found to be cracked on completion of this cruise so that no profiles or calibrated salinity values are available. The salinity data is pressure affected. Calibrations for other sensors have remained the same during the period of use of the instrument to within the accuracies of Table 3 on page 11.

### *Nansen station data listings and profiles*

Nansen stations were not occupied on this cruise.

### *VCTOD station data listings and profiles*

Eighteen VCTOD stations were occupied at sites shown in figures 73 and 85. Listings and profiles are given on pages 177 to 187. Temperature sections have been discussed earlier. The salinity (conductivity) sensor was not working properly for this cruise, so that neither salinity profile shapes or absolute values are given. Data from a single Nansen bottle strung above the VCTOD at each station are shown on page 176, as are concurrent surface bucket measurements.

#### Stations to 163°E (1 to 4, 13 to 18)

Stations 1 to 3 have surface mixed layer depths of 10, 30 and 100 m and sonic layer depths of 120, approximately 170, and 150 m, respectively. Stations 13 and 14 have no mixed layer, and sonic layer depths of 0 and 120 m. Stations 15 to 18 have mixed layer depths of 50, 60, 20, and 40 m and sonic layer depths of 50, 60, 120 and 40 m.

Temperature inversion were found as follows: station 1 at 170 m, 220 m, 420, 560 m, and possibly 1170 m; station 3 at 160 m, 360 m and perhaps 1150 m; station 13 at 80 m, 210 m, 275 m, 400 m, 600 m and 1180 m; station 14 at 220 m and 350 m; station 16 at 150 m, 300 m and 360 m; station 17 at 220 m; station 18 at 150 m and 350 m. These appear in pen plots made on HMAS Cook, and not all are confirmed. An XBT taken at 34°01'(S), 151°47'(E) on 18 August shows an inversion to colder temperatures of about half a degree centigrade at 210 m (water depth 1060 m). An XBT 7 nautical miles to the east shows a smaller inversion at the same depth. Other XBT also show inversions.

#### Stations east of 163°E (5 to 12)

These stations have surface mixed layer depths from 50 to 290 m and sonic layer depths from 140 to 290 m. Temperature and sound speed at stations 11 and 12 increases from the surface to near the bottom. Mixed layers are shallowest in frontal areas. Temperature inversions were found as follows: stations 5 at 520 m and possibly 930 m; station 6 at 1250 m; station 9 perhaps at 700 m. Station 9 (and possibly stations 7, 10, 11, 12) shows a bottom mixed layer. These latter stations were on Challenger Plateau.

#### *Currents*

Surface current directions inferred from SST contours and XBTs are shown in figures 84 and 93.

#### *Additional data*

Tracks of vessels deploying XBTs in the CSIRO merchant ship programme are shown in figure 94. The XBTs are widely spaced.

Text continued on page 163

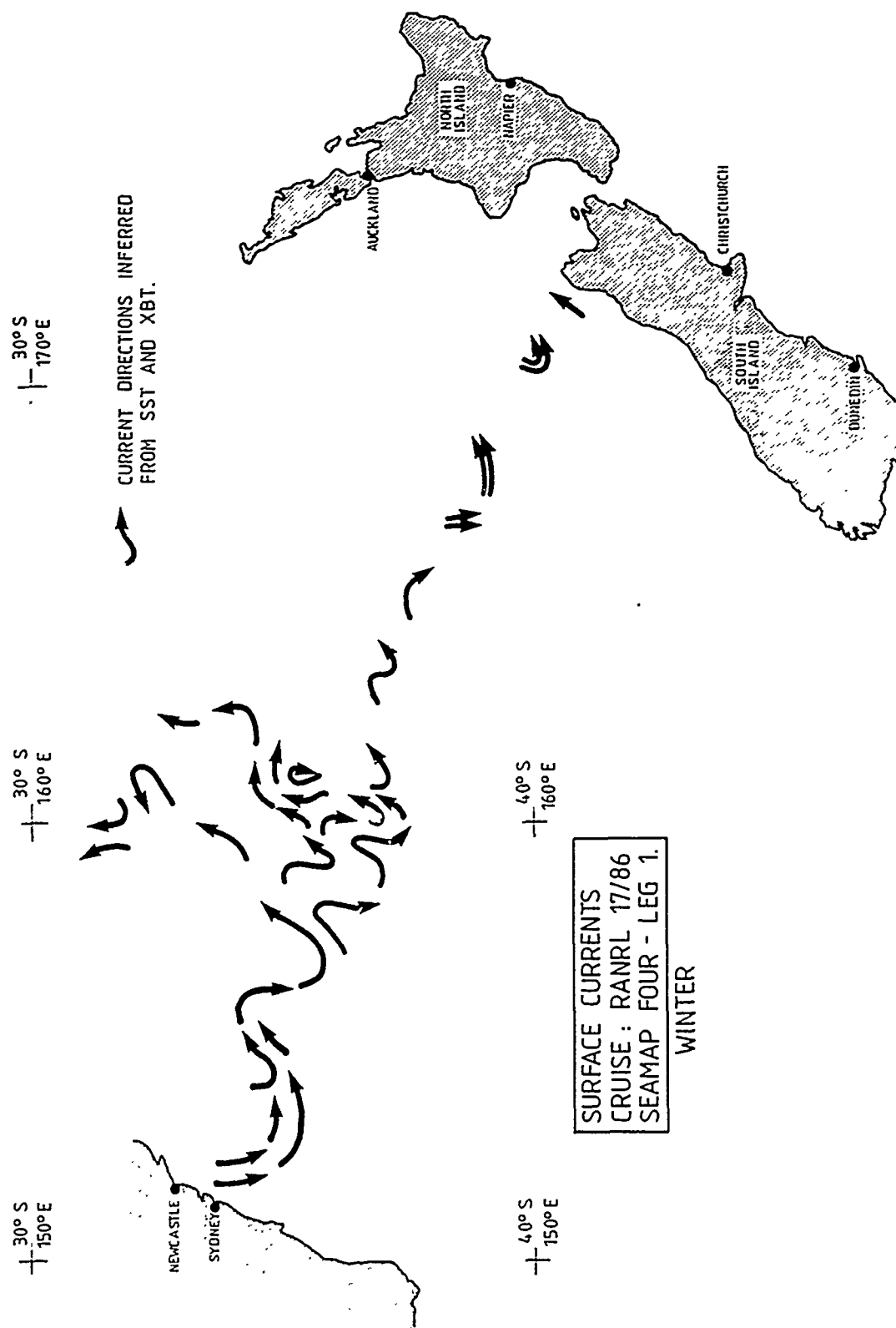


Figure 84. Surface current directions inferred from VCTOD, XBT and sea surface temperature data, 18 to 27 August 1986. Winter survey SEAMAP 4 (RANRL 17/86) route B

DIAGRAMS FOR LEG 2 OF WINTER SURVEY SEAMAP 4 (RANRL 17/86) ARE SHOWN ON PAGES 164 TO 175.

THESE ARE FOLLOWED ON PAGES 177 TO 187 BY VCTOD DATA FOR LEGS ONE AND TWO.

SALINITY WAS PRESSURE AFFECTED AND NO VALUES OR PROFILES ARE SHOWN.

CALIBRATION DATA OBTAINED FROM A SINGLE NANSSEN BOTTLE STRUNG ABOVE THE CTD ARE SHOWN ON PAGE 176, WITH CONCURRENT BUCKET SAMPLES.

OVERPLOTS OF TEMPERATURE PROFILES TO 500 m ARE SHOWN ON PAGE 187.

Text continued on page 177

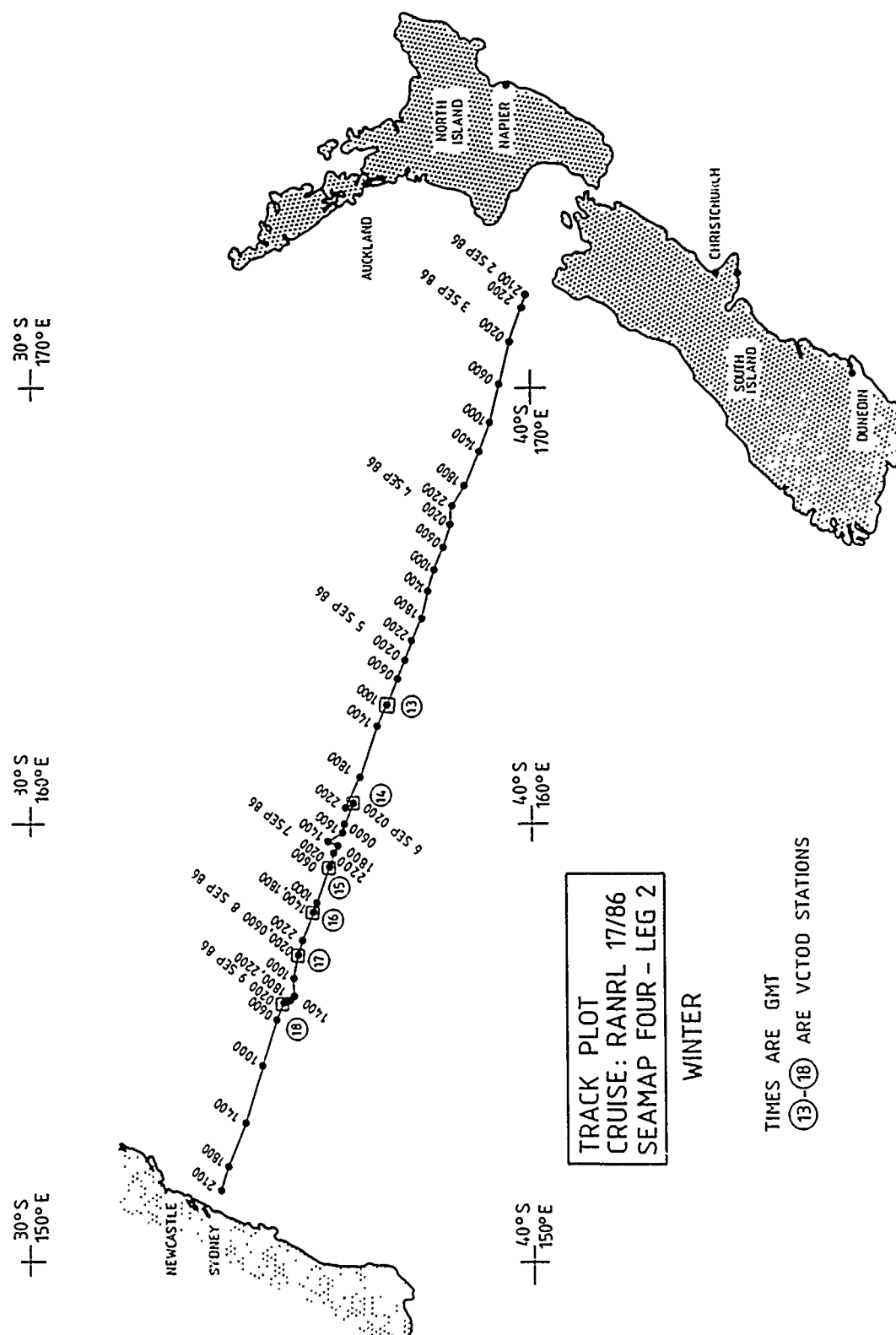


Figure 85. Track plot and oceanographic station positions for SEAMAP 4 (RANRL 17/86). Leg two winter survey on route B in the south west Pacific Ocean, 18 to 27 September 1986

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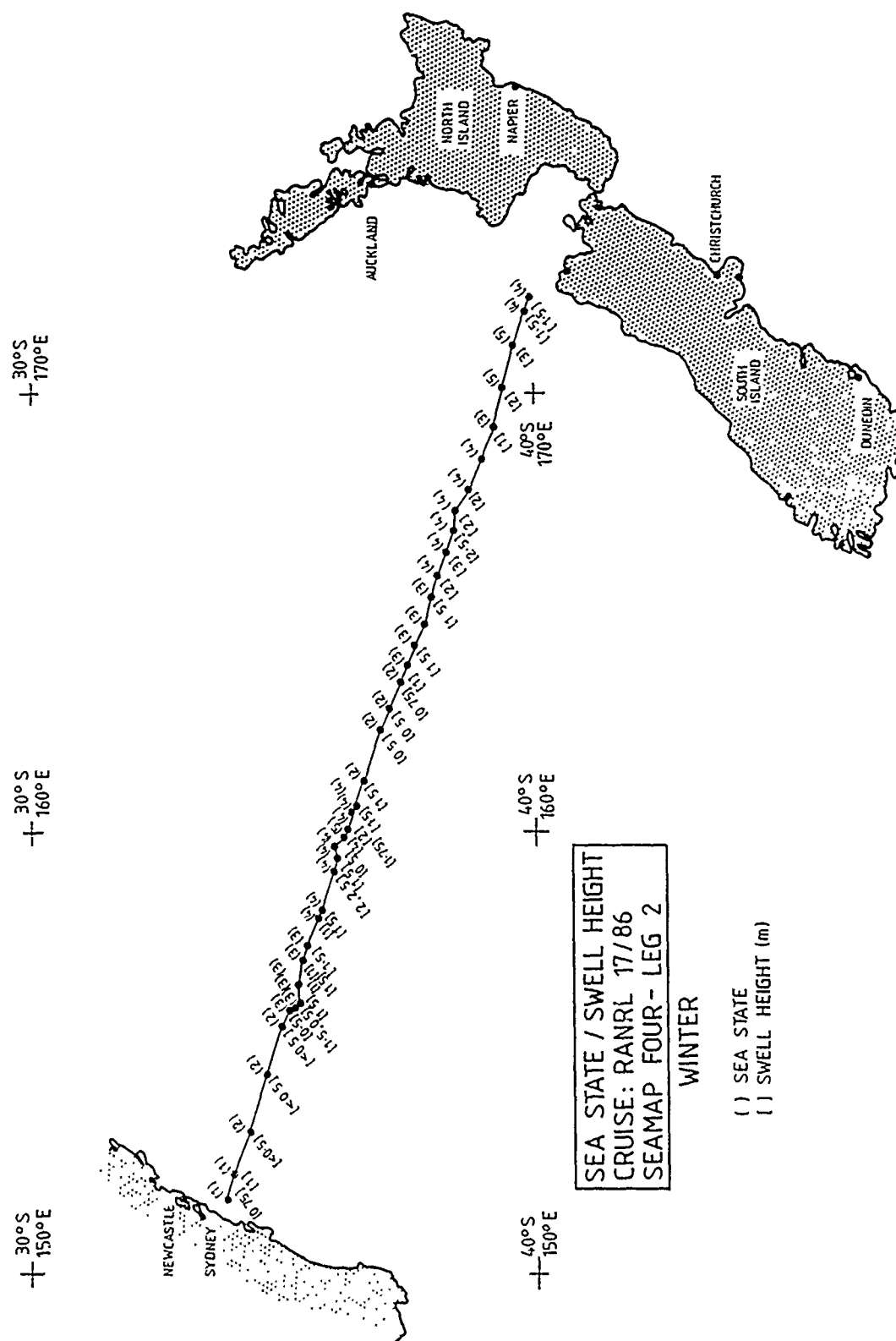


Figure 86. Sea state and swell height for SEAMAP route B in winter 1986 on survey SEAMAP 4 (RANRL 17/86)



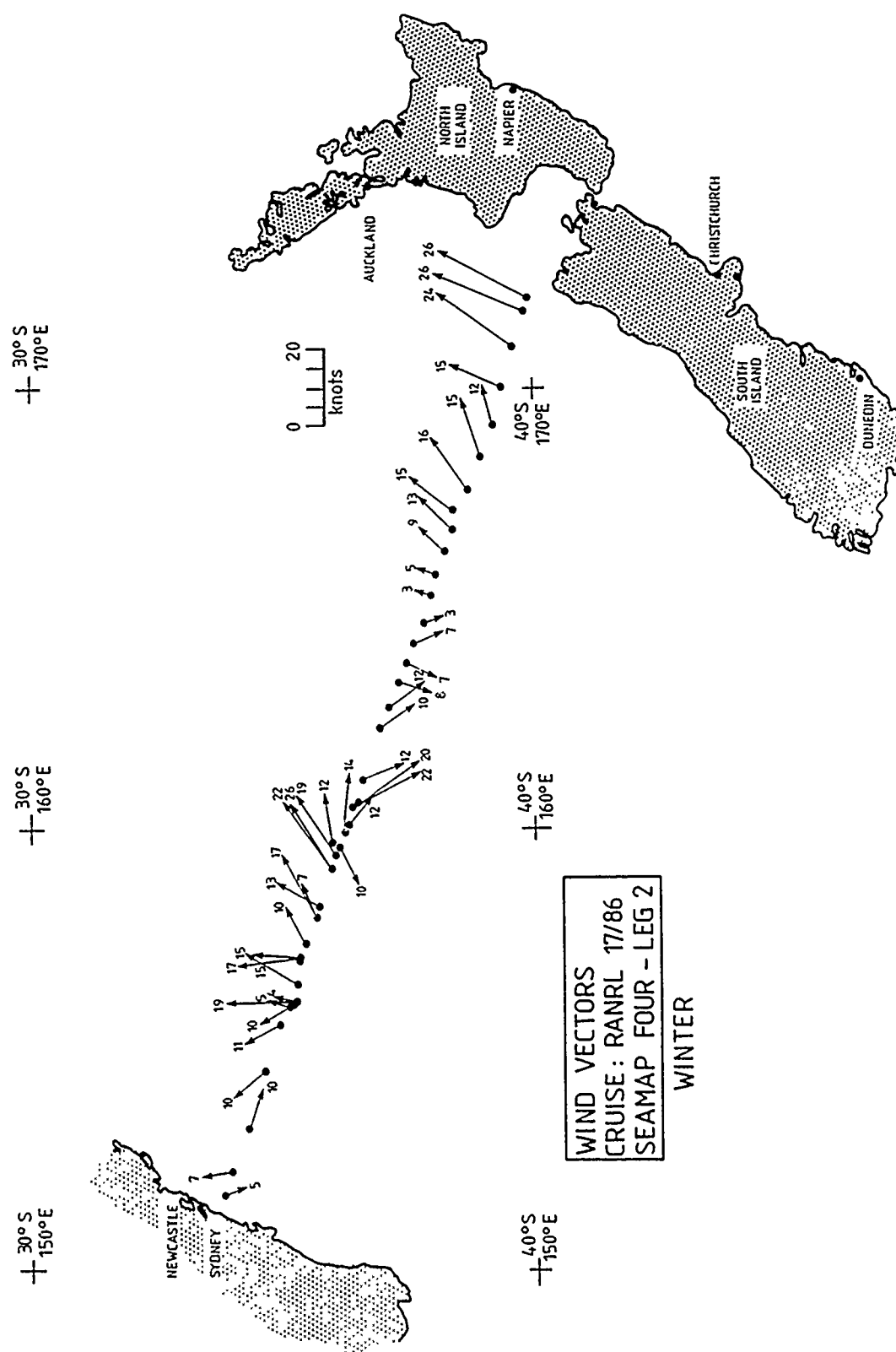


Figure 87. Wind vectors for SEAMAP route B in winter 1986 on survey SEAMAP 4 (RANRL 17/86)

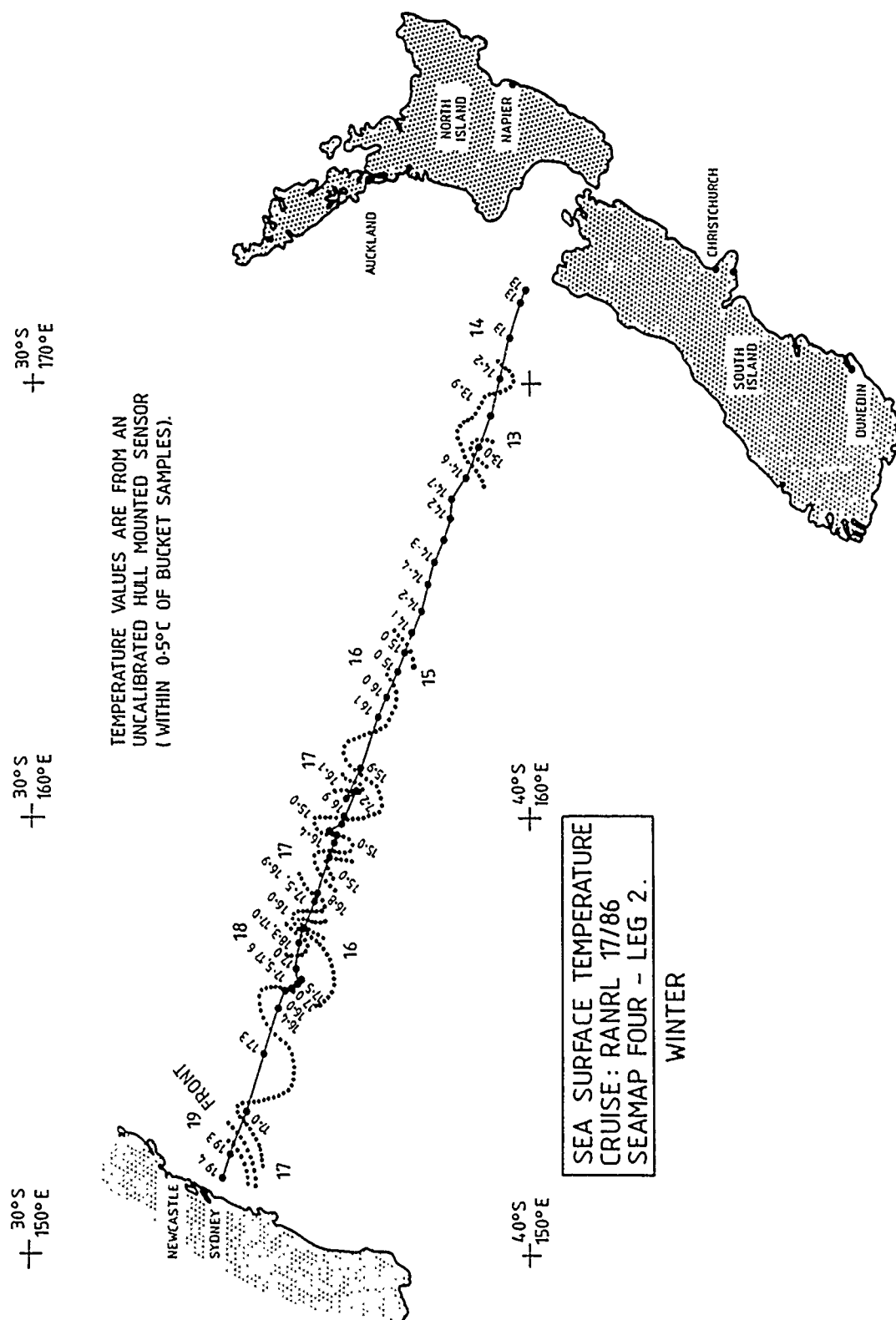


Figure 88. Sea surface temperature for SEAMAP route B in winter 1986 on survey SEAMAP 4 (RANRL 17/86). Also see figure 90 for surface bucket values

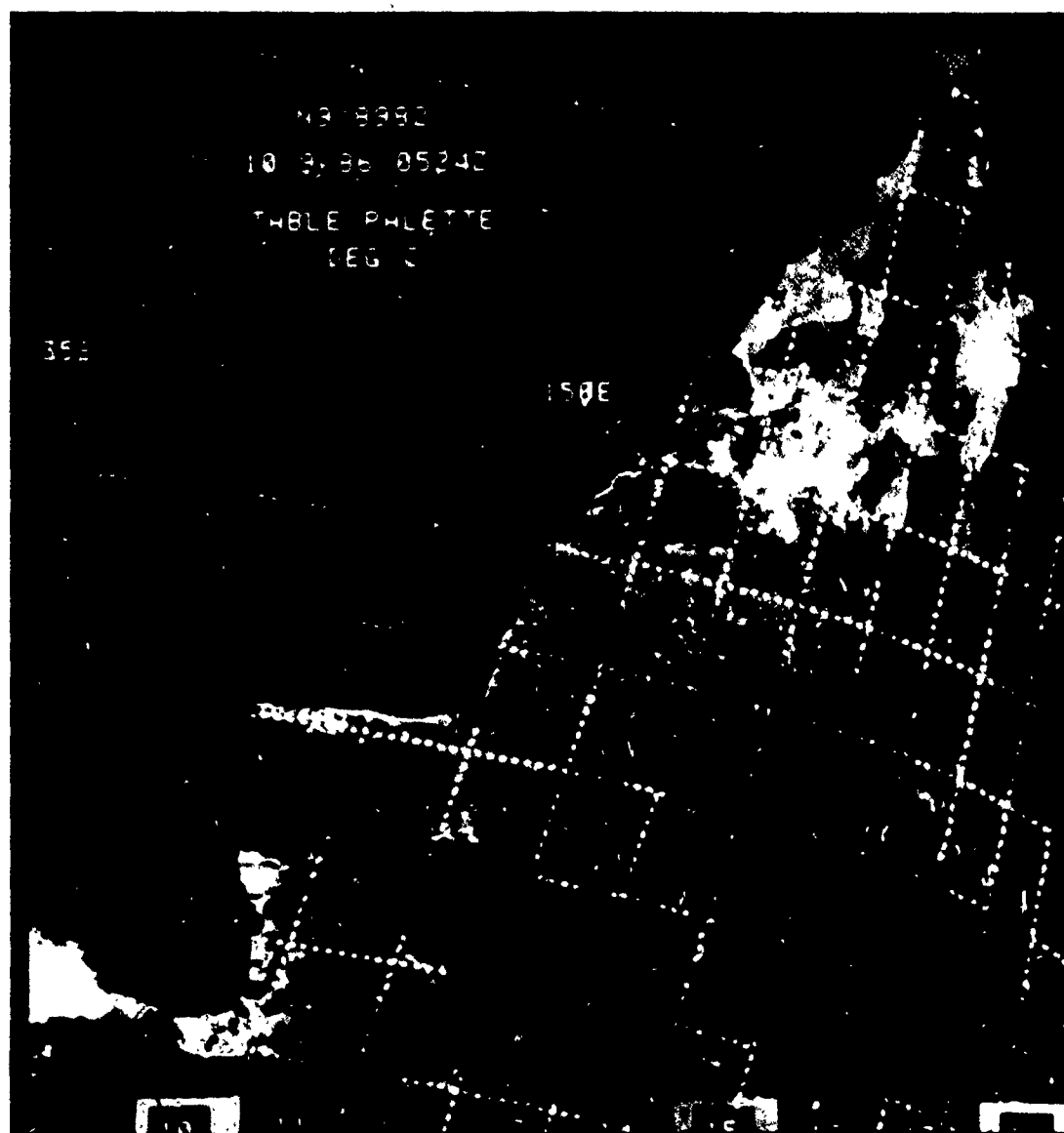


Figure 89. Sea surface temperature contours derived by CSIRO Division of Atmospheric Research, Aspendale Victoria from satellite data for 10 September 1986. Coinciding with sections of SEAMAP 4 winter survey (RANRL 17/86) route A. (Also see figure 78 for Sea surface temperature contours derived by Royal Meteorological Centre Wellington, New Zealand from satellite data for 1, 8 September 1986)

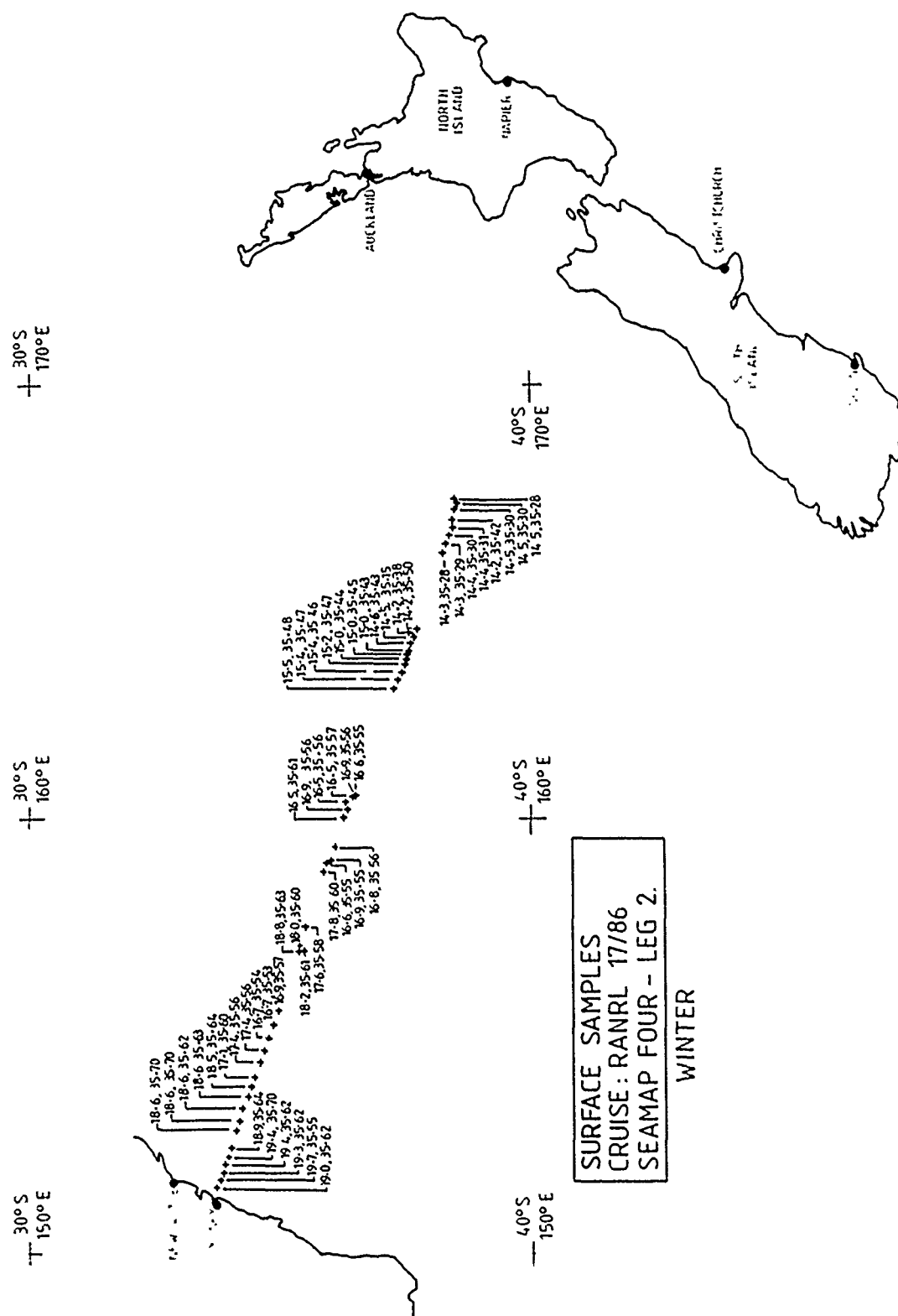


Figure 90. Sea surface salinity values for SEAMAP route B in winter 1986 on survey SEAMAP 4 (RANRL 17/86)

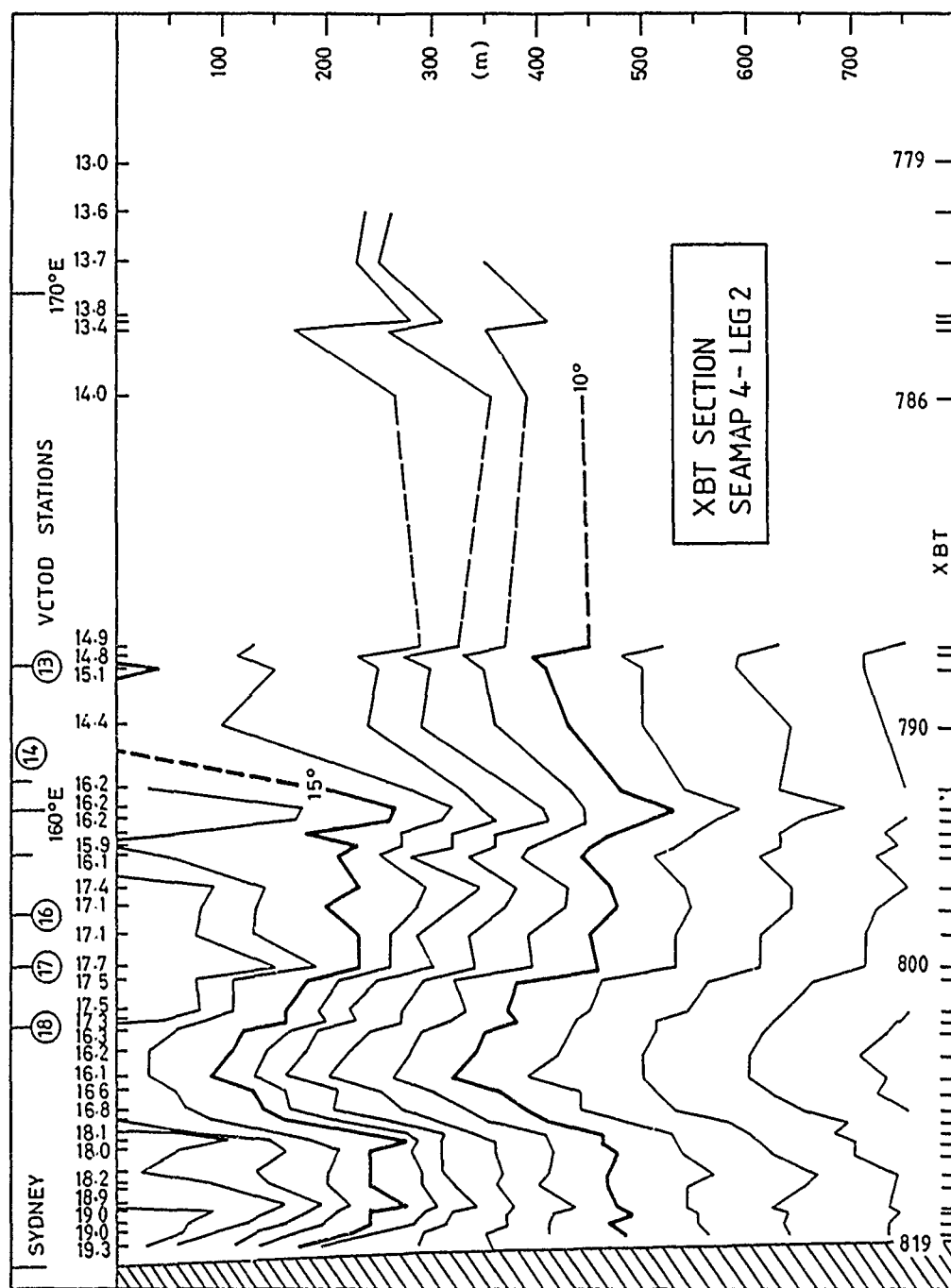


Figure 91. XBT temperature section from Cook Strait To Sydney for 2 to 9 September 1986.  
Winter survey SEAMAP 4 (RANRL 17/86) route B

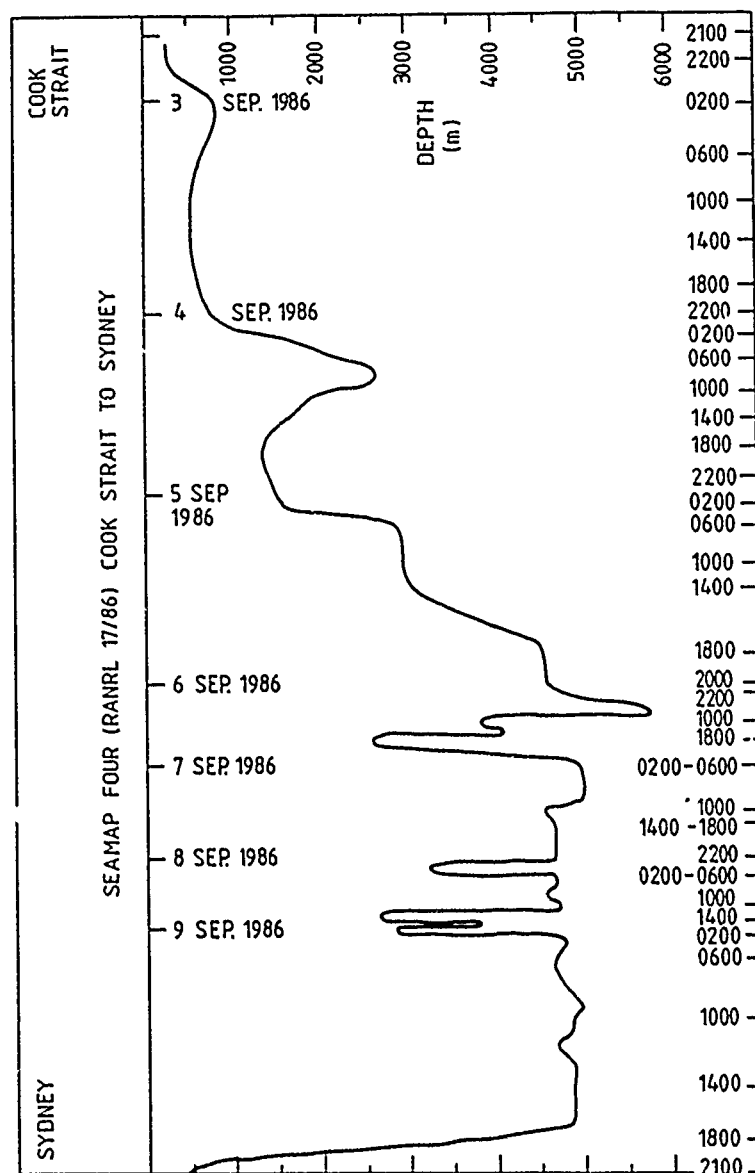


Figure 92. Bathymetry from Cook Strait to Sydney for 2 to 9 September 1986. Winter survey SEAMAP 4 (RANRL 17/86) route B

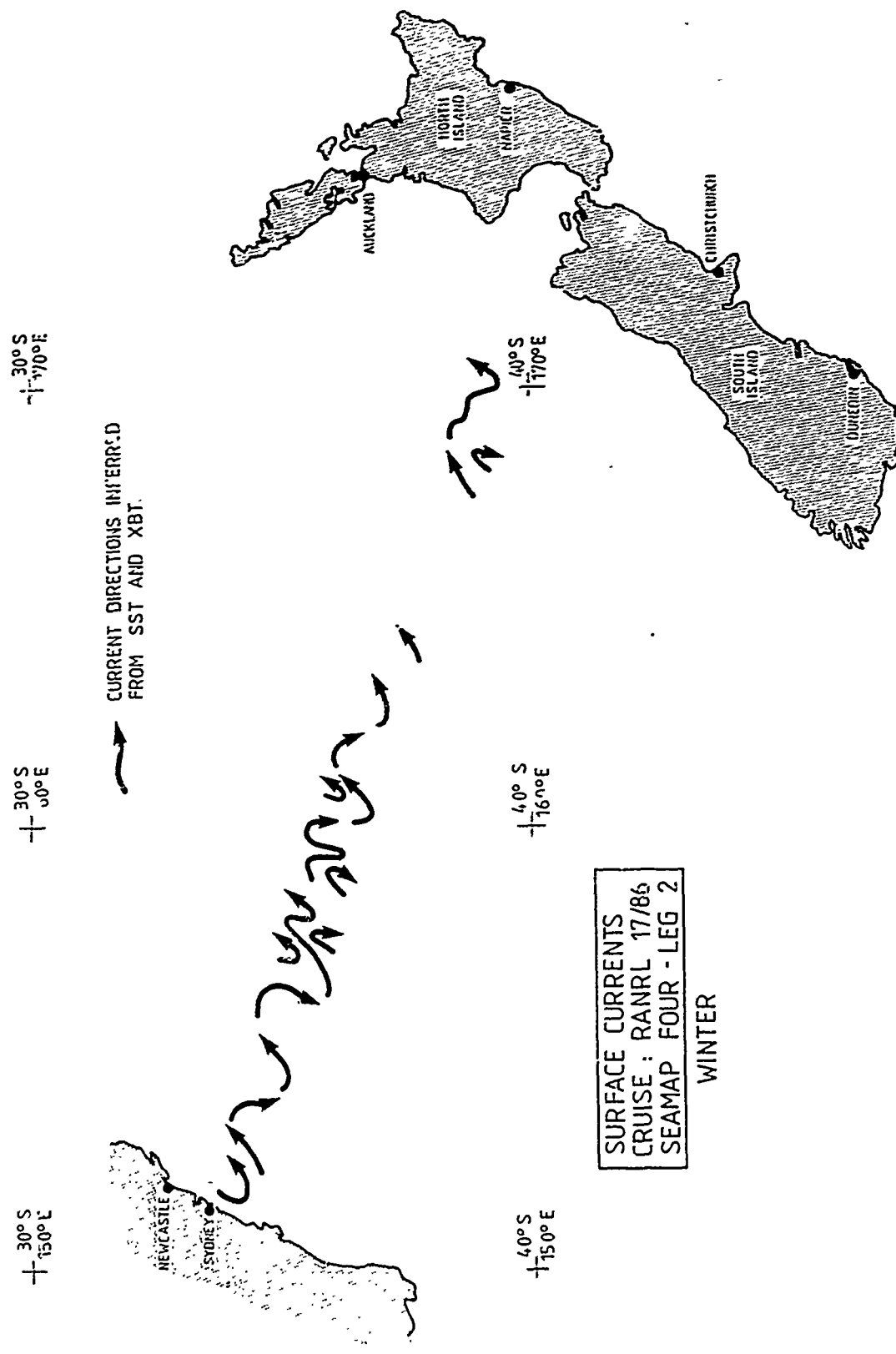


Figure 93. Surface current directions inferred from VCTOD, XBT and sea surface temperature data, 2 to 9 September 1986. Winter survey SEAMAP 4 (RANRL 17/86) route B

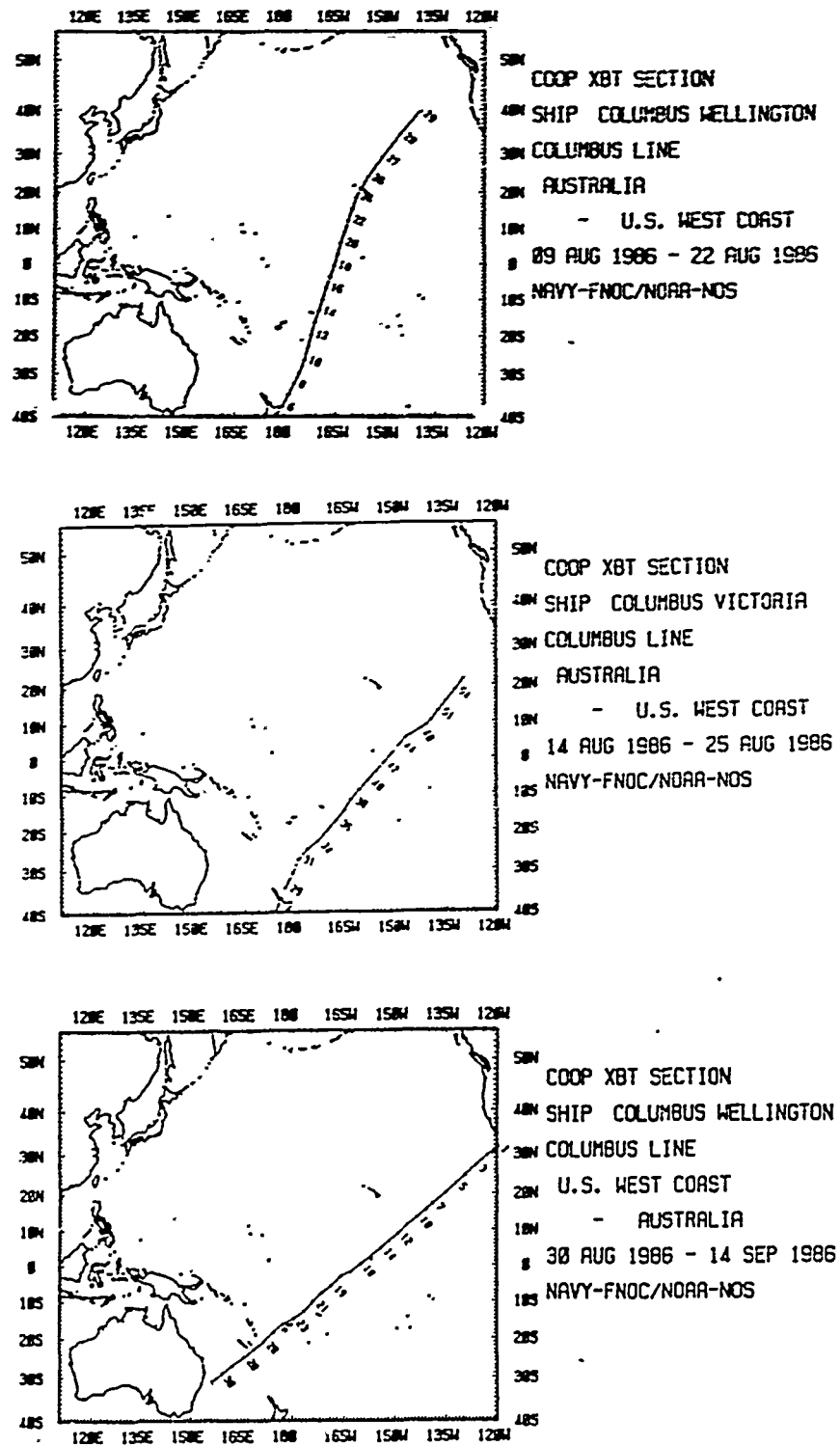


Figure 94. Tracks of vessels in the CSIRO merchant ship XBT programme in the south west Pacific Ocean for late September and October 1986. Coinciding with the period of winter survey SEAMAP 4 (RANRL 17/86) route B



Deep Nansen bottle				Surface bucket		
Stn	Sample depth (m)	Temperature	Salinity	S	T	Bottom depth (m)
1	4798	1.194 $\pm$ 0.001		35.657	-	4841
2				35.668	18.3	4840
3	4719	1.179	34.728	35.668	18.7	4880
4	4842	1.190 $\pm$ 0.002	34.728	35.624	17.2	4880
5				35.45	14.6	1470
6	2126	2.24 $\pm$ 0.01	34.69	35.44	14.4	2190
7				35.41	14.3	597
8				35.41	14.1	540
9	819	6.56 $\pm$ 0.01	34.51	35.37	13.9	848
10	621	8.80 $\pm$ 0.01	34.67	35.38	13.9	648
11	228		35.260	35.185	13.4	258
12	90(?)	Material in bottle	35.176	35.048	13.3	103
13	2744	1.595 $\pm$ 0.010	34.720	35.505	15.4	2862
14	4515	1.152 $\pm$ 0.02	34.710	35.551	16.2	4780
15	4178	1.155 $\pm$ 0.003	34.712	35.599	16.25	4332
16	4640	1.101 $\pm$ 0.002	34.710	35.666	17.05	4674
17	4607	1.155 $\pm$ 0.001	34.713	35.662	18.2	4690
18	4627	1.128 $\pm$ 0.002		35.638	17.3	4693

Deep Nansen bottle and surface bucket sample temperature and salinities taken at VCTOD stations for winter survey SEAMAP 4 (RANRL 17/86) route B. The Nansen bottle was placed on the VCTOD wire, about 2 m above the sensors.

LISTINGS AND PROFILES FOR 18 VCTOD STATIONS OCCUPIED ON WINTER SURVEY SEAMAP 4 (RANRL 17/86) ARE SHOWN ON PAGES 178 TO 187.

OVERPLOTS OF TEMPERATURE PROFILES TO 500 m ARE SHOWN ON PAGE 187.

Text continued on page 188

SHIP : HNS COCK - Fleesey  
 STATION NUMBER : 1 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 19-AUG-1986 (DAY NUMBER 231)  
 START TIME : 0553 GMT - 2  
 CRUISE : CR17/86  
 POSITION : 34:12.665 152:31.506  
 CWT DEPTH : 4500 METERS  
 BOTTOM DEPTH : 4842 METERS

PRESS	DEPTH	TEMP	SAL	SIGMA-T	STA	G.A.	Sound	Pop.Temp
10.0	9.9	17.492	0.000	0.000	0.00	0.000	1515.84	17.49
20.0	19.9	17.491	0.000	0.000	0.00	0.000	1515.80	17.49
30.0	29.8	17.469	0.000	0.000	0.00	0.000	1515.74	17.46
40.0	39.7	17.452	0.000	0.000	0.00	0.000	1515.52	17.45
50.0	49.6	17.440	0.000	0.000	0.00	0.000	1515.73	17.43
60.0	59.5	17.430	0.000	0.000	0.00	0.000	1515.85	17.42
70.0	69.5	17.413	0.000	0.000	0.00	0.000	1515.99	17.40
80.0	79.4	17.399	0.000	0.000	0.00	0.000	1516.11	17.38
90.0	89.3	17.370	0.000	0.000	0.00	0.000	1516.24	17.35
100.0	99.3	17.360	0.000	0.000	0.00	0.000	1516.36	17.34
110.0	109.1	17.337	0.000	0.000	0.00	0.000	1516.63	17.32
120.0	119.0	16.843	0.000	0.000	0.00	0.000	1515.24	16.82
130.0	128.9	16.249	0.000	0.000	0.00	0.000	1513.79	16.22
140.0	138.8	16.009	0.000	0.000	0.00	0.000	1513.40	15.99
150.0	148.7	15.504	0.000	0.000	0.00	0.000	1512.09	15.47
160.0	158.6	14.893	0.000	0.000	0.00	0.000	1510.66	14.94
170.0	168.5	14.274	0.000	0.000	0.00	0.000	1510.27	14.69
180.0	178.4	14.217	0.000	0.000	0.00	0.000	1508.92	14.16
190.0	188.3	13.826	0.000	0.000	0.00	0.000	1507.92	13.79
200.0	198.2	13.429	0.000	0.000	0.00	0.000	1506.86	13.39
210.0	208.1	13.112	0.000	0.000	0.00	0.000	1506.10	13.07
220.0	218.0	12.713	0.000	0.000	0.00	0.000	1505.05	12.67
230.0	227.9	12.279	0.000	0.000	0.00	0.000	1503.91	12.27
240.0	237.8	11.874	0.000	0.000	0.00	0.000	1503.17	11.83
250.0	247.7	11.454	0.000	0.000	0.00	0.000	1502.35	11.60
260.0	257.6	11.082	0.000	0.000	0.00	0.000	1500.87	11.13
270.0	267.5	10.774	0.000	0.000	0.00	0.000	1499.75	10.72
280.0	277.4	10.299	0.000	0.000	0.00	0.000	1499.37	10.24
290.0	287.3	9.887	0.000	0.000	0.00	0.000	1497.15	9.83
300.0	297.2	9.613	0.000	0.000	0.00	0.000	1496.45	9.56
310.0	307.1	9.000	0.000	0.000	0.00	0.000	1494.95	8.94
320.0	317.0	8.401	0.000	0.000	0.00	0.000	1493.47	8.34
330.0	326.9	7.442	0.000	0.000	0.00	0.000	1491.34	7.37
340.0	336.8	6.687	0.000	0.000	0.00	0.000	1490.03	6.61
350.0	346.7	5.950	0.000	0.000	0.00	0.000	1488.75	5.87
360.0	356.6	5.376	0.000	0.000	0.00	0.000	1489.07	5.29
370.0	366.5	4.882	0.000	0.000	0.00	0.000	1487.74	4.79
380.0	376.4	4.381	0.000	0.000	0.00	0.000	1487.32	4.29
390.0	386.3	3.927	0.000	0.000	0.00	0.000	1487.12	3.83
400.0	396.2	3.513	0.000	0.000	0.00	0.000	1487.50	3.51
410.0	406.1	3.214	0.000	0.000	0.00	0.000	1487.50	3.10
420.0	416.0	3.006	0.000	0.000	0.00	0.000	1486.28	2.89
430.0	425.9	2.777	0.000	0.000	0.00	0.000	1487.01	2.65
440.0	435.8	2.639	0.000	0.000	0.00	0.000	1490.08	2.51
450.0	445.7	2.531	0.000	0.000	0.00	0.000	1491.30	2.43
460.0	455.6	2.418	0.000	0.000	0.00	0.000	1491.50	2.29
470.0	465.5	2.310	0.000	0.000	0.00	0.000	1491.80	2.19
480.0	475.4	2.266	0.000	0.000	0.00	0.000	1495.25	2.11
490.0	485.3	2.181	0.000	0.000	0.00	0.000	1496.54	2.02
500.0	495.2	2.128	0.000	0.000	0.00	0.000	1498.00	1.95
510.0	505.1	2.057	0.000	0.000	0.00	0.000	1499.39	1.88
520.0	515.0	2.018	0.000	0.000	0.00	0.000	1500.93	1.83

SHIP : HNS COCK - Fleesey  
 STATION NUMBER : 2 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 19-AUG-1986 (DAY NUMBER 231)  
 START TIME : 0553 GMT - 2  
 CRUISE : CR17/86  
 POSITION : 34:12.665 152:31.506  
 CWT DEPTH : 4500 METERS  
 BOTTOM DEPTH : 4842 METERS

PRESS	DEPTH	TEMP	SAL	SIGMA-T	STA	G.A.	Sound	Pop.Temp
10.0	9.9	18.091	0.000	0.000	0.00	0.000	1516.98	18.09
20.0	19.9	18.089	0.000	0.000	0.00	0.000	1517.13	18.09
30.0	29.8	18.068	0.000	0.000	0.00	0.000	1517.38	18.08
40.0	39.7	18.068	0.000	0.000	0.00	0.000	1517.45	18.08
50.0	49.6	18.078	0.000	0.000	0.00	0.000	1517.63	18.07
60.0	59.5	17.952	0.000	0.000	0.00	0.000	1517.36	17.94
70.0	69.5	17.832	0.000	0.000	0.00	0.000	1517.24	17.82
80.0	79.4	17.752	0.000	0.000	0.00	0.000	1517.13	17.74
90.0	89.3	17.691	0.000	0.000	0.00	0.000	1517.15	17.68
100.0	99.3	17.664	0.000	0.000	0.00	0.000	1517.24	17.65
110.0	109.1	17.603	0.000	0.000	0.00	0.000	1517.36	17.58
120.0	119.0	17.555	0.000	0.000	0.00	0.000	1517.55	17.53
130.0	128.9	17.476	0.000	0.000	0.00	0.000	1517.62	17.45
140.0	138.8	17.396	0.000	0.000	0.00	0.000	1517.73	17.37
150.0	148.7	17.310	0.000	0.000	0.00	0.000	1517.01	17.08
160.0	158.6	17.100	0.000	0.000	0.00	0.000	1515.00	16.29
170.0	168.5	16.733	0.000	0.000	0.00	0.000	1513.92	15.84
180.0	178.4	16.323	0.000	0.000	0.00	0.000	1512.88	15.40
190.0	188.3	15.879	0.000	0.000	0.00	0.000	1512.24	15.10
200.0	198.2	15.442	0.000	0.000	0.00	0.000	1511.22	14.70
210.0	208.1	15.144	0.000	0.000	0.00	0.000	1510.01	14.23
220.0	218.0	14.741	0.000	0.000	0.00	0.000	1508.87	13.78
230.0	227.9	14.278	0.000	0.000	0.00	0.000	1507.43	13.25
240.0	237.8	13.829	0.000	0.000	0.00	0.000	1506.57	12.91
250.0	247.7	13.305	0.000	0.000	0.00	0.000	1505.25	12.45
260.0	257.6	12.960	0.000	0.000	0.00	0.000	1504.26	12.10
270.0	267.5	12.501	0.000	0.000	0.00	0.000	1503.46	11.74
280.0	277.4	12.156	0.000	0.000	0.00	0.000	1502.16	11.32
290.0	287.3	11.799	0.000	0.000	0.00	0.000	1500.97	10.88
300.0	297.2	11.377	0.000	0.000	0.00	0.000	1499.53	10.41
310.0	307.1	10.940	0.000	0.000	0.00	0.000	1498.29	9.94
320.0	317.0	10.469	0.000	0.000	0.00	0.000	1497.47	9.62
330.0	326.9	9.844	0.000	0.000	0.00	0.000	1494.37	8.59
340.0	336.8	8.659	0.000	0.000	0.00	0.000	1492.59	7.70
350.0	346.7	7.774	0.000	0.000	0.00	0.000	1490.47	6.74
360.0	356.6	6.814	0.000	0.000	0.00	0.000	1489.53	6.09
370.0	366.5	6.173	0.000	0.000	0.00	0.000	1488.91	5.51
380.0	376.4	5.599	0.000	0.000	0.00	0.000	1488.29	4.94
390.0	386.3	5.036	0.000	0.000	0.00	0.000	1487.82	4.42
400.0	396.2	4.519	0.000	0.000	0.00	0.000	1487.80	3.99
410.0	406.1	4.097	0.000	0.000	0.00	0.000	1487.70	3.58
420.0	416.0	3.683	0.000	0.000	0.00	0.000	1488.03	3.24
430.0	425.9	3.351	0.000	0.000	0.00	0.000	1488.40	2.94
440.0	435.8	3.060	0.000	0.000	0.00	0.000	1489.35	2.76
450.0	445.7	2.732	0.000	0.000	0.00	0.000	1490.44	2.60
460.0	455.6	2.582	0.000	0.000	0.00	0.000	1491.45	2.45
470.0	465.5	2.483	0.000	0.000	0.00	0.000	1492.73	2.34
480.0	475.4	2.353	0.000	0.000	0.00	0.000	1493.86	2.20
490.0	485.3	2.287	0.000	0.000	0.00	0.000	1495.11	2.13
500.0	495.2	2.191	0.000	0.000	0.00	0.000	1496.56	2.02
510.0	505.1	2.113	0.000	0.000	0.00	0.000	1497.89	1.94
520.0	515.0	2.047	0.000	0.000	0.00	0.000	1499.37	1.87
530.0	524.9	1.989	0.000	0.000	0.00	0.000	1500.76	1.80

2700.0	2663.6	1.974	0.000	0.000	0.00	0.000	1502.43	1.78
2800.0	2761.6	1.796	0.000	0.000	0.00	0.000	1503.87	1.73
2900.0	2859.5	1.814	0.000	0.000	0.00	0.000	1505.18	1.50
3000.0	2957.5	1.734	0.000	0.000	0.00	0.000	1506.52	1.51
3100.0	3055.3	1.611	0.000	0.000	0.00	0.000	1507.83	1.41
3200.0	3153.2	1.563	0.000	0.000	0.00	0.000	1509.21	1.33
3300.0	3251.0	1.481	0.000	0.000	0.00	0.000	1510.57	1.23
3400.0	3348.7	1.412	0.000	0.000	0.00	0.000	1511.97	1.16
3500.0	3446.4	1.365	0.000	0.000	0.00	0.000	1513.50	1.10
3600.0	3544.1	1.337	0.000	0.000	0.00	0.000	1514.99	1.04
3700.0	3641.7	1.254	0.000	0.000	0.00	0.000	1516.49	0.98
3800.0	3739.3	1.236	0.000	0.000	0.00	0.000	1518.11	0.95
3900.0	3836.8	1.216	0.000	0.000	0.00	0.000	1519.75	0.92
4000.0	3934.3	1.200	0.000	0.000	0.00	0.000	1521.39	0.89
4100.0	4031.7	1.191	0.000	0.000	0.00	0.000	1523.11	0.87
4200.0	4129.1	1.189	0.000	0.000	0.00	0.000	1524.84	0.86
4300.0	4226.5	1.186	0.000	0.000	0.00	0.000	1526.55	0.8

SHIP : HNS COX - Plessey  
 STATION NUMBER : 3 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 19-AUG-1986 (DAY NUMBER 231)  
 START TIME : 1345 OCT - 2  
 CRUISE : C017/86  
 POSITION : 34:49.000 154:06.000  
 CWT DEPTH : 4700 METRES  
 BOTTOM DEPTH : 4877 METRES

PRESS	DEPTH	TDP	SAL	SIOW-T	SW	G.A.	Sound	Pot.Temp
10.0	9.9	18.859	0.000	0.000	0.00	0.000	1519.24	18.87
20.0	19.9	18.874	0.000	0.000	0.00	0.000	1519.35	18.87
30.0	29.8	18.877	0.000	0.000	0.00	0.000	1519.50	18.87
40.0	39.7	18.877	0.000	0.000	0.00	0.000	1519.72	18.87
50.0	49.5	18.877	0.000	0.000	0.00	0.000	1519.91	18.87
60.0	59.6	18.880	0.000	0.000	0.00	0.000	1520.06	18.87
70.0	69.5	18.869	0.000	0.000	0.00	0.000	1520.21	18.86
80.0	79.4	18.867	0.000	0.000	0.00	0.000	1520.37	18.85
90.0	89.3	18.850	0.000	0.000	0.00	0.000	1520.43	18.83
100.0	99.3	18.859	0.000	0.000	0.00	0.000	1520.63	18.84
120.0	119.1	18.818	0.000	0.000	0.00	0.000	1520.86	18.84
140.0	138.9	18.717	0.000	0.000	0.00	0.000	1520.87	18.69
160.0	158.0	18.124	0.000	0.000	0.00	0.000	1519.48	18.10
180.0	178.6	17.669	0.000	0.000	0.00	0.000	1518.40	17.64
200.0	198.5	17.156	0.000	0.000	0.00	0.000	1517.16	17.12
220.0	218.3	16.745	0.000	0.000	0.00	0.000	1516.25	16.71
240.0	238.1	16.390	0.000	0.000	0.00	0.000	1515.49	16.34
260.0	258.0	16.000	0.000	0.000	0.00	0.000	1514.91	16.04
280.0	277.8	15.725	0.000	0.000	0.00	0.000	1514.03	15.66
300.0	297.6	15.243	0.000	0.000	0.00	0.000	1512.78	15.20
320.0	317.5	14.536	0.000	0.000	0.00	0.000	1511.06	14.59
340.0	337.3	14.043	0.000	0.000	0.00	0.000	1509.51	13.99
360.0	357.1	13.641	0.000	0.000	0.00	0.000	1508.36	13.59
380.0	376.9	13.274	0.000	0.000	0.00	0.000	1507.64	13.22
400.0	396.7	12.715	0.000	0.000	0.00	0.000	1505.94	12.66
420.0	416.6	12.445	0.000	0.000	0.00	0.000	1505.39	12.39
440.0	436.4	12.165	0.000	0.000	0.00	0.000	1504.71	12.11
460.0	456.2	11.719	0.000	0.000	0.00	0.000	1503.41	11.66
480.0	476.0	11.330	0.000	0.000	0.00	0.000	1502.34	11.27
500.0	495.8	10.901	0.000	0.000	0.00	0.000	1501.11	10.84
520.0	515.6	9.783	0.000	0.000	0.00	0.000	1497.71	9.70
540.0	535.4	9.211	0.000	0.000	0.00	0.000	1496.53	9.15
560.0	555.2	8.773	0.000	0.000	0.00	0.000	1494.02	8.64
580.0	575.0	8.273	0.000	0.000	0.00	0.000	1492.07	8.14
600.0	594.8	7.724	0.000	0.000	0.00	0.000	1490.05	7.62
620.0	614.6	7.297	0.000	0.000	0.00	0.000	1488.84	7.19
640.0	634.4	6.864	0.000	0.000	0.00	0.000	1488.24	6.76
660.0	654.2	6.469	0.000	0.000	0.00	0.000	1487.61	6.37
680.0	674.0	6.142	0.000	0.000	0.00	0.000	1487.08	6.04
700.0	693.8	5.826	0.000	0.000	0.00	0.000	1486.18	5.71
720.0	713.6	5.526	0.000	0.000	0.00	0.000	1485.18	5.41
740.0	733.4	5.251	0.000	0.000	0.00	0.000	1484.11	5.14
760.0	753.2	4.991	0.000	0.000	0.00	0.000	1483.11	4.88
780.0	773.0	4.751	0.000	0.000	0.00	0.000	1482.81	4.63
800.0	792.8	4.536	0.000	0.000	0.00	0.000	1482.90	4.43
820.0	812.6	4.341	0.000	0.000	0.00	0.000	1482.03	4.24
840.0	832.4	4.166	0.000	0.000	0.00	0.000	1482.25	4.04
860.0	852.2	3.991	0.000	0.000	0.00	0.000	1481.56	3.84
880.0	872.0	3.826	0.000	0.000	0.00	0.000	1481.94	3.65
900.0	891.8	3.671	0.000	0.000	0.00	0.000	1481.44	3.45
920.0	911.6	3.526	0.000	0.000	0.00	0.000	1481.18	3.26
940.0	931.4	3.391	0.000	0.000	0.00	0.000	1480.94	3.07
960.0	951.2	3.266	0.000	0.000	0.00	0.000	1480.75	2.88
980.0	971.0	3.151	0.000	0.000	0.00	0.000	1480.51	2.69
1000.0	990.8	3.046	0.000	0.000	0.00	0.000	1480.24	2.50
1020.0	1010.6	2.951	0.000	0.000	0.00	0.000	1479.94	2.31
1040.0	1030.4	2.866	0.000	0.000	0.00	0.000	1479.66	2.12
1060.0	1050.2	2.791	0.000	0.000	0.00	0.000	1479.33	1.93
1080.0	1070.0	2.726	0.000	0.000	0.00	0.000	1478.93	1.74
1100.0	1089.8	2.671	0.000	0.000	0.00	0.000	1478.42	1.55

SHIP : HNS COX - Plessey  
 STATION NUMBER : 4 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 20-AUG-1986 (DAY NUMBER 232)  
 START TIME : 0150 OCT - 2  
 CRUISE : C017/86  
 POSITION : 34:49.775 155:04.532  
 CWT DEPTH : 4940 METRES  
 BOTTOM DEPTH : 4873 METRES

PRESS	DEPTH	TDP	SAL	SIOW-T	SW	G.A.	Sound	Pot.Temp
10.0	9.9	17.098	0.000	0.000	0.00	0.000	1513.98	17.10
20.0	19.9	17.035	0.000	0.000	0.00	0.000	1513.95	17.03
30.0	29.8	16.943	0.000	0.000	0.00	0.000	1513.85	16.94
40.0	39.7	16.857	0.000	0.000	0.00	0.000	1513.75	16.86
50.0	49.6	16.761	0.000	0.000	0.00	0.000	1513.63	16.77
60.0	59.6	16.652	0.000	0.000	0.00	0.000	1513.48	16.66
70.0	69.5	16.535	0.000	0.000	0.00	0.000	1513.30	16.54
80.0	79.4	16.415	0.000	0.000	0.00	0.000	1513.17	16.42
90.0	89.3	16.291	0.000	0.000	0.00	0.000	1513.00	16.29
100.0	99.3	16.161	0.000	0.000	0.00	0.000	1512.87	16.16
120.0	119.1	15.910	0.000	0.000	0.00	0.000	1512.57	15.91
140.0	138.9	15.610	0.000	0.000	0.00	0.000	1512.27	15.61
160.0	158.0	15.272	0.000	0.000	0.00	0.000	1511.97	15.27
180.0	178.6	14.901	0.000	0.000	0.00	0.000	1511.66	14.90
200.0	198.5	14.500	0.000	0.000	0.00	0.000	1511.35	14.50
220.0	218.3	14.079	0.000	0.000	0.00	0.000	1511.04	14.08
240.0	238.1	13.638	0.000	0.000	0.00	0.000	1510.73	13.64
260.0	258.0	13.177	0.000	0.000	0.00	0.000	1510.42	13.18
280.0	277.8	12.696	0.000	0.000	0.00	0.000	1510.11	12.70
300.0	297.6	12.195	0.000	0.000	0.00	0.000	1509.80	12.20
320.0	317.5	11.674	0.000	0.000	0.00	0.000	1509.49	11.68
340.0	337.3	11.133	0.000	0.000	0.00	0.000	1509.18	11.19
360.0	357.1	10.572	0.000	0.000	0.00	0.000	1508.87	10.63
380.0	376.9	10.001	0.000	0.000	0.00	0.000	1508.56	10.06
400.0	396.7	9.420	0.000	0.000	0.00	0.000	1508.25	9.49
420.0	416.6	8.829	0.000	0.000	0.00	0.000	1507.94	8.92
440.0	436.4	8.228	0.000	0.000	0.00	0.000	1507.63	8.31
460.0	456.2	7.617	0.000	0.000	0.00	0.000	1507.32	7.69
480.0	476.0	6.996	0.000	0.000	0.00	0.000	1507.01	7.07
500.0	495.8	6.365	0.000	0.000	0.00	0.000	1506.70	6.45
520.0	515.6	5.724	0.000	0.000	0.00	0.000	1506.39	5.83
540.0	535.4	5.073	0.000	0.000	0.00	0.000	1506.08	5.12
560.0	555.2	4.412	0.000	0.000	0.00	0.000	1505.77	4.47
580.0	575.0	3.741	0.000	0.000	0.00	0.000	1505.46	3.80
600.0	594.8	3.060	0.000	0.000	0.00	0.000	1505.15	3.13
620.0	614.6	2.379	0.000	0.000	0.00	0.000	1504.84	2.46
640.0	634.4	1.688	0.000	0.000	0.00	0.000	1504.53	1.75
660.0	654.2	0.997	0.000	0.000	0.00	0.000	1504.22	1.04
680.0	674.0	0.306	0.000	0.000	0.00	0.000	1503.91	0.35
700.0	693.8	-0.385	0.000	0.000	0.00	0.000	1503.60	-0.34
720.0	713.6	-1.076	0.000	0.000	0.00	0.000	1503.29	-1.03
740.0	733.4	-1.767	0.000	0.000	0.00	0.000	1502.98	-1.72
760.0	753.2	-2.458	0.000	0.000	0.00	0.000	1502.67	-2.41
780.0	773.0	-3.149	0.000	0.000	0.00	0.000	1502.36	-3.10
800.0	792.8	-3.840	0.000	0.000	0.00	0.000	1502.05	-3.79
820.0	812.6	-4.531	0.000	0.000	0.00	0.000	1501.74	-4.48
840.0	832.4	-5.222	0.000	0.000	0.00	0.000	1501.43	-5.17
860.0	852.2	-5.913	0.000	0.000	0.00	0.000	1501.12	-5.86
880.0	872.0	-6.604	0.000	0.000	0.00	0.000	1500.81	-6.55
900.0	891.8	-7.295	0.000	0.000	0.00	0.000	1500.50	-7.24
920.0	911.6	-7.986	0.000	0.000	0.00	0.000	1500.19	-7.93
940.0	931.4	-8.677	0.000	0.000	0.00	0.000	1499.88	-8.62
960.0	951.2	-9.368	0.000	0.000	0.00	0.000	1499.57	-9.31
980.0	971.0	-10.059	0.000	0.000	0.00	0.000	1499.26	-10.00
1000.0	990.8	-10.750	0.000	0.000	0.00	0.000	1498.95	-10.69
1020.0	1010.6	-11.441	0.000	0.000	0.00	0.000	1498.64	-11.38
1040.0	1030.4	-12.132	0.000	0.000	0.00	0.000	1498.33	-12.07
1060.0	1050.2	-12.823	0.000	0.000	0.00	0.000	1498.02	-12.76
1080.0	1070.0	-13.514	0.000	0.000	0.00	0.000	1497.71	-13.45
1100.0	1089.8	-14.205	0.000	0.000	0.00	0.000	1497.40	-14.14

2700.0	2663.5	1.806	0.000	0.000	0.00	0.000	1501.67	1.61
2800.0	2761.5	1.744	0.000	0.000	0.00	0.000	1501.12	1.54</

SHIP : HNS COOK - Plessey  
 STATION NUMBER : 5 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 26-AUG-1986 (DAY NUMBER 238)  
 START TIME : 0415 GMT - Z  
 CRUISE : CK17/86  
 POSITION : 38:00.00S 154:59.00E  
 CAST DEPTH : 1470 METRES  
 BOTTOM DEPTH : 1470 METRES

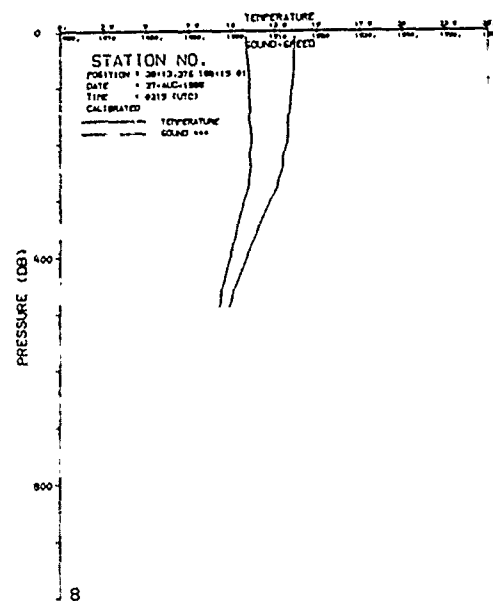
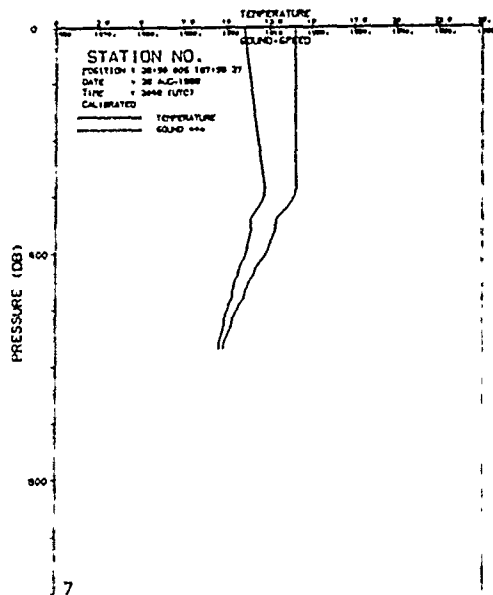
PRESS	DEPTH	TEMP	SAL	SIGMA-T	S/A	G.A.	Sound	Pot.Temp
0.0	0.0	13.924	35.308	26.442	157.75	0.000	1503.96	13.92
10.0	9.9	13.932	35.395	26.508	151.72	0.155	1504.07	13.93
20.0	19.8	13.931	35.432	26.536	149.32	0.305	1504.23	13.93
30.0	29.8	13.931	35.444	26.545	148.75	0.454	1504.38	13.93
40.0	39.7	13.931	35.448	26.549	148.73	0.603	1504.60	13.93
50.0	49.6	13.928	35.448	26.549	148.94	0.752	1504.73	13.92
60.0	59.5	13.922	35.441	26.550	149.19	0.901	1504.83	13.89
70.0	69.5	13.875	35.441	26.555	148.96	1.050	1504.89	13.86
80.0	79.4	13.849	35.434	26.555	149.22	1.199	1504.93	13.84
90.0	89.3	13.831	35.434	26.559	149.13	1.348	1505.03	13.82
100.0	99.2	13.820	35.433	26.561	149.25	1.497	1505.17	13.81
110.0	109.1	13.800	35.434	26.565	149.37	1.796	1505.44	13.78
120.0	119.0	13.800	35.433	26.564	149.99	2.095	1505.74	13.78
130.0	128.9	13.743	35.403	26.553	151.61	2.397	1505.83	13.72
140.0	138.8	13.743	35.403	26.553	151.61	2.699	1505.83	13.72
150.0	148.7	13.743	35.403	26.553	151.61	2.999	1505.83	13.72
160.0	158.6	13.743	35.403	26.553	151.61	3.299	1505.83	13.72
170.0	168.5	13.743	35.403	26.553	151.61	3.599	1505.83	13.72
180.0	178.4	13.743	35.403	26.553	151.61	3.899	1505.83	13.72
190.0	188.3	13.743	35.403	26.553	151.61	4.199	1505.83	13.72
200.0	198.2	13.743	35.403	26.553	151.61	4.499	1505.83	13.72
210.0	208.1	13.743	35.403	26.553	151.61	4.799	1505.83	13.72
220.0	218.0	13.743	35.403	26.553	151.61	5.099	1505.83	13.72
230.0	227.9	13.743	35.403	26.553	151.61	5.399	1505.83	13.72
240.0	237.8	13.743	35.403	26.553	151.61	5.699	1505.83	13.72
250.0	247.7	13.743	35.403	26.553	151.61	5.999	1505.83	13.72
260.0	257.6	13.743	35.403	26.553	151.61	6.299	1505.83	13.72
270.0	267.5	13.743	35.403	26.553	151.61	6.599	1505.83	13.72
280.0	277.4	13.743	35.403	26.553	151.61	6.899	1505.83	13.72
290.0	287.3	13.743	35.403	26.553	151.61	7.199	1505.83	13.72
300.0	297.2	13.743	35.403	26.553	151.61	7.499	1505.83	13.72
310.0	307.1	13.743	35.403	26.553	151.61	7.799	1505.83	13.72
320.0	317.0	13.743	35.403	26.553	151.61	8.099	1505.83	13.72
330.0	326.9	13.743	35.403	26.553	151.61	8.399	1505.83	13.72
340.0	336.8	13.743	35.403	26.553	151.61	8.699	1505.83	13.72
350.0	346.7	13.743	35.403	26.553	151.61	8.999	1505.83	13.72
360.0	356.6	13.743	35.403	26.553	151.61	9.299	1505.83	13.72
370.0	366.5	13.743	35.403	26.553	151.61	9.599	1505.83	13.72
380.0	376.4	13.743	35.403	26.553	151.61	9.899	1505.83	13.72
390.0	386.3	13.743	35.403	26.553	151.61	10.199	1505.83	13.72
400.0	396.2	13.743	35.403	26.553	151.61	10.499	1505.83	13.72
410.0	406.1	13.743	35.403	26.553	151.61	10.799	1505.83	13.72
420.0	416.0	13.743	35.403	26.553	151.61	11.099	1505.83	13.72
430.0	425.9	13.743	35.403	26.553	151.61	11.399	1505.83	13.72
440.0	435.8	13.743	35.403	26.553	151.61	11.699	1505.83	13.72
450.0	445.7	13.743	35.403	26.553	151.61	11.999	1505.83	13.72
460.0	455.6	13.743	35.403	26.553	151.61	12.299	1505.83	13.72
470.0	465.5	13.743	35.403	26.553	151.61	12.599	1505.83	13.72
480.0	475.4	13.743	35.403	26.553	151.61	12.899	1505.83	13.72
490.0	485.3	13.743	35.403	26.553	151.61	13.199	1505.83	13.72
500.0	495.2	13.743	35.403	26.553	151.61	13.499	1505.83	13.72
510.0	505.1	13.743	35.403	26.553	151.61	13.799	1505.83	13.72
520.0	515.0	13.743	35.403	26.553	151.61	14.099	1505.83	13.72
530.0	524.9	13.743	35.403	26.553	151.61	14.399	1505.83	13.72
540.0	534.8	13.743	35.403	26.553	151.61	14.699	1505.83	13.72
550.0	544.7	13.743	35.403	26.553	151.61	14.999	1505.83	13.72
560.0	554.6	13.743	35.403	26.553	151.61	15.299	1505.83	13.72
570.0	564.5	13.743	35.403	26.553	151.61	15.599	1505.83	13.72
580.0	574.4	13.743	35.403	26.553	151.61	15.899	1505.83	13.72
590.0	584.3	13.743	35.403	26.553	151.61	16.199	1505.83	13.72
600.0	594.2	13.743	35.403	26.553	151.61	16.499	1505.83	13.72
610.0	604.1	13.743	35.403	26.553	151.61	16.799	1505.83	13.72
620.0	614.0	13.743	35.403	26.553	151.61	17.099	1505.83	13.72
630.0	623.9	13.743	35.403	26.553	151.61	17.399	1505.83	13.72
640.0	633.8	13.743	35.403	26.553	151.61	17.699	1505.83	13.72
650.0	643.7	13.743	35.403	26.553	151.61	17.999	1505.83	13.72
660.0	653.6	13.743	35.403	26.553	151.61	18.299	1505.83	13.72
670.0	663.5	13.743	35.403	26.553	151.61	18.599	1505.83	13.72
680.0	673.4	13.743	35.403	26.553	151.61	18.899	1505.83	13.72
690.0	683.3	13.743	35.403	26.553	151.61	19.199	1505.83	13.72
700.0	693.2	13.743	35.403	26.553	151.61	19.499	1505.83	13.72
710.0	703.1	13.743	35.403	26.553	151.61	19.799	1505.83	13.72
720.0	713.0	13.743	35.403	26.553	151.61	20.099	1505.83	13.72
730.0	722.9	13.743	35.403	26.553	151.61	20.399	1505.83	13.72
740.0	732.8	13.743	35.403	26.553	151.61	20.699	1505.83	13.72
750.0	742.7	13.743	35.403	26.553	151.61	20.999	1505.83	13.72
760.0	752.6	13.743	35.403	26.553	151.61	21.299	1505.83	13.72
770.0	762.5	13.743	35.403	26.553	151.61	21.599	1505.83	13.72
780.0	772.4	13.743	35.403	26.553	151.61	21.899	1505.83	13.72
790.0	782.3	13.743	35.403	26.553	151.61	22.199	1505.83	13.72
800.0	792.2	13.743	35.403	26.553	151.61	22.499	1505.83	13.72
810.0	802.1	13.743	35.403	26.553	151.61	22.799	1505.83	13.72
820.0	812.0	13.743	35.403	26.553	151.61	23.099	1505.83	13.72
830.0	821.9	13.743	35.403	26.553	151.61	23.399	1505.83	13.72
840.0	831.8	13.743	35.403	26.553	151.61	23.699	1505.83	13.72
850.0	841.7	13.743	35.403	26.553	151.61	23.999	1505.83	13.72
860.0	851.6	13.743	35.403	26.553	151.61	24.299	1505.83	13.72
870.0	861.5	13.743	35.403	26.553	151.61	24.599	1505.83	13.72
880.0	871.4	13.743	35.403	26.553	151.61	24.899	1505.83	13.72
890.0	881.3	13.743	35.403	26.553	151.61	25.199	1505.83	13.72
900.0	891.2	13.743	35.403	26.553	151.61	25.499	1505.83	13.72
910.0	901.1	13.743	35.403	26.553	151.61	25.799	1505.83	13.72
920.0	911.0	13.743	35.403	26.553	151.61	26.099	1505.83	13.72
930.0	920.9	13.743	35.403	26.553	151.61	26.399	1505.83	13.72
940.0	930.8	13.743	35.403	26.553	151.61	26.699	1505.83	13.72
950.0	940.7	13.743	35.403	26.553	151.61	26.999	1505.83	13.72
960.0	950.6	13.743	35.403	26.553	151.61	27.299	1505.83	13.72
970.0	960.5	13.743	35.403	26.553	151.61	27.599	1505.83	13.72
980.0	970.4	13.743	35.403	26.553	151.61	27.899	1505.83	13.72
990.0	980.3	13.743	35.403	26.553	151.61	28.199	1505.83	13.72
1000.0	990.2	13.743	35.403	26.553	151.61	28.499	1505.83	13.72
1010.0	1000.1	13.743	35.403	26.553	151.61	28.799	1505.83	13.72
1020.0	1010.0	13.743	35.403	26.553	151.61	29.099	1505.83	13.72
1030.0	1019.9	13.743	35.403	26.553	151.61	29.399	1505.83	13.72
1040.0	1029.8	13.743	35.403	26.553	151.61	29.699	1505.83	13.72
1050.0	1039.7	13.743	35.403	26.553	151.61	29.999	1505.83	13.72
1060.0	1049.6	13.743	35.403	26.553	151.61	30.299	1505.83	13.72
1070.0	1059.5	13.743	35.403	26.553	151.61	30.599	1505.83	13.72
1080.0	1069.4	13.743	35.403	26.553	151.61	30.899	1505.83	13.72
1090.0	1079.3	13.743	35.403	26.553	151.61	31.199	1505.83	13.72
1100.0	1089.2	13.743	35.403	26.553	151.61	31.499	1505.83	13.72
1110.0	1099.1	13.743	35.403	26.553	151.61	31.799	1505.83	13.72
1120.0	1109.0	13.743	35.403	26.553	151.61	32.099	1505.83	13.72
1130.0	1118.9	13.743	35.403	26.553	151.61	32.399	1505.83	13.72
1140.0	1128.8	13.743	35.403	26.553	151.61	32.699	1505.83	13.72
1150.0	1138.7	13.743	35.403	26.553	151.61	32.999	1505.83	13.72
1160.0	1148.6	13.743	35.403	26.553	151.61	33.299	1505.83	13.72
1170.0	1158.5	13.743	35.403	26.553	151.61	33.599	1505.83	13.72

SHIP : HNS COOK - Plessey  
 STATION NUMBER : 7 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 26-AUG-1986 (DAY NUMBER 238)  
 START TIME : 2049 GMT - 2  
 CRUISE : CK17/86  
 POSITION : 38:50.00S 167:58.37E  
 CAST DEPTH : 560 METRES  
 BOTTOM DEPTH : 597 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	S/A	G.A.	Sound	Pot.Temp
0.0	0.0	14.007	0.000	0.000	0.00	0.000	1504.23	14.01 15 0.010 0.011
10.0	9.9	14.003	0.000	0.000	0.00	0.000	1504.31	14.00 51 0.004 0.079
20.0	19.8	14.002	0.000	0.000	0.00	0.000	1504.45	14.00 49 0.000 0.005
30.0	29.8	14.002	0.000	0.000	0.03	0.000	1504.62	14.00 56 0.000 0.007
40.0	39.7	14.009	0.000	0.000	0.00	0.000	1504.81	14.00 46 0.004 0.005
50.0	49.6	14.012	0.000	0.000	0.00	0.000	1505.01	14.00 40 0.000 0.003
60.0	59.5	14.012	0.000	0.000	0.00	0.000	1505.15	14.00 37 0.000 0.005
70.0	69.5	14.012	0.000	0.000	0.00	0.000	1505.31	14.00 35 0.000 0.004
80.0	79.4	14.012	0.000	0.000	0.00	0.000	1505.48	14.00 28 0.000 0.004
90.0	89.3	14.013	0.000	0.000	0.00	0.000	1505.63	14.00 45 0.002 0.002
100.0	99.2	14.016	0.000	0.000	0.00	0.000	1505.81	14.00 36 0.004 0.004
120.0	119.1	14.022	0.000	0.000	0.00	0.000	1506.13	14.00 60 0.000 0.003
140.0	138.9	14.025	0.000	0.000	0.00	0.000	1506.50	14.01 52 0.004 0.000
160.0	158.7	14.032	0.000	0.000	0.00	0.000	1506.85	14.01 55 0.000 0.002
180.0	178.6	14.033	0.000	0.000	0.00	0.000	1507.18	14.01 50 0.003 0.003
200.0	198.4	14.042	0.000	0.000	0.00	0.000	1507.47	14.01 63 0.000 0.000
220.0	218.2	14.042	0.000	0.000	0.00	0.000	1507.84	14.01 57 0.000 0.003
240.0	238.0	14.042	0.000	0.000	0.00	0.000	1508.14	14.01 60 0.000 0.004
260.0	257.9	14.051	0.000	0.000	0.00	0.000	1508.51	14.01 71 0.003 0.003
280.0	277.7	14.052	0.000	0.000	0.00	0.000	1508.82	14.01 62 0.000 0.003
300.0	297.5	13.978	0.000	0.000	0.00	0.000	1508.86	13.93 72 0.057 0.067
320.0	317.3	13.541	0.000	0.000	0.00	0.000	1507.61	13.50 59 0.135 0.163
340.0	337.2	12.878	0.000	0.000	0.00	0.000	1505.69	12.83 61 0.033 0.031
360.0	357.0	12.845	0.000	0.000	0.00	0.000	1505.91	12.80 56 0.012 0.022
380.0	376.8	12.561	0.000	0.000	0.00	0.000	1505.21	12.51 50 0.061 0.071
400.0	396.6	12.344	0.000	0.000	0.00	0.000	1504.82	12.29 61 0.021 0.022
420.0	416.4	11.888	0.000	0.000	0.00	0.000	1501.44	11.83 55 0.057 0.055
440.0	436.2	11.580	0.000	0.000	0.00	0.000	1502.68	11.52 47 0.068 0.067
460.0	456.0	11.216	0.000	0.000	0.00	0.000	1501.70	11.16 58 0.062 0.069
480.0	475.8	11.048	0.000	0.000	0.00	0.000	1501.41	10.99 71 0.048 0.058
500.0	495.6	10.645	0.000	0.000	0.00	0.000	1500.28	10.58 79 0.046 0.046
550.0	545.1	9.982	0.020	0.000	0.00	0.000	1498.63	9.92 58 0.071 0.074
570.0	564.9	9.801	0.000	0.000	0.00	0.000	1498.21	9.73 22 0.010 0.018

SHIP : HNS COOK - Plessey  
 STATION NUMBER : 8 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 27-AUG-1986 (DAY NUMBER 239)  
 START TIME : 0215 GMT - 2  
 CRUISE : CK17/86  
 POSITION : 39:13.37S 169:15.01E  
 CAST DEPTH : 490 METRES  
 BOTTOM DEPTH : 540 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	S/A	G.A.	Sound	Pot.Temp
10.0	9.9	13.671	0.000	0.000	0.00	0.000	1503.20	13.67 73 0.004 0.083
20.0	19.8	13.668	0.000	0.000	0.00	0.000	1503.40	13.67 44 0.000 0.015
30.0	29.8	13.661	0.000	0.000	0.00	0.000	1503.53	13.66 43 0.004 0.004
40.0	39.7	13.657	0.000	0.000	0.00	0.000	1503.64	13.65 48 0.003 0.004
50.0	49.6	13.649	0.000	0.000	0.00	0.000	1503.80	13.64 57 0.003 0.005
60.0	59.5	13.643	0.000	0.000	0.00	0.000	1503.94	13.63 58 0.005 0.005
70.0	69.5	13.631	0.000	0.000	0.00	0.000	1504.06	13.62 62 0.004 0.000
80.0	79.4	13.607	0.000	0.000	0.00	0.000	1504.13	13.60 52 0.015 0.020
90.0	89.3	13.556	0.000	0.000	0.00	0.000	1504.13	13.54 48 0.006 0.008
100.0	99.2	13.521	0.000	0.000	0.00	0.000	1504.16	13.51 62 0.009 0.010
120.0	119.1	13.452	0.000	0.000	0.00	0.000	1504.25	13.43 60 0.012 0.010
140.0	138.9	13.401	0.000	0.000	0.00	0.000	1504.38	13.38 52 0.020 0.022
160.0	158.7	13.301	0.000	0.000	0.00	0.000	1504.37	13.28 50 0.007 0.007
180.0	178.6	13.308	0.000	0.000	0.00	0.000	1504.71	13.28 59 0.005 0.005
200.0	198.4	13.217	0.000	0.000	0.00	0.000	1504.70	13.19 66 0.017 0.023
220.0	218.2	13.040	0.000	0.000	0.00	0.000	1504.41	13.01 69 0.014 0.015
240.0	238.0	13.009	0.000	0.000	0.00	0.000	1504.63	12.98 65 0.016 0.019
260.0	257.9	12.792	0.000	0.000	0.00	0.000	1504.18	12.76 53 0.025 0.024
280.0	277.7	12.649	0.000	0.000	0.00	0.000	1503.97	12.61 59 0.030 0.038
300.0	297.5	12.287	0.000	0.000	0.00	0.000	1502.99	12.25 55 0.063 0.051
320.0	317.3	12.011	0.000	0.000	0.00	0.000	1502.35	11.97 58 0.054 0.057
340.0	337.1	11.697	0.000	0.000	0.00	0.000	1501.54	11.65 55 0.027 0.026
360.0	357.0	11.484	0.000	0.000	0.00	0.000	1501.09	11.44 51 0.055 0.066
380.0	376.8	11.150	0.000	0.000	0.00	0.000	1500.21	11.10 57 0.040 0.039
400.0	396.6	10.957	0.000	0.000	0.00	0.000	1499.83	10.91 45 0.028 0.042
420.0	416.4	10.662	0.000	0.000	0.00	0.000	1499.03	10.61 30 0.063 0.067
440.0	436.2	10.399	0.000	0.000	0.00	0.000	1498.39	10.35 35 0.050 0.050
460.0	456.0	10.115	0.000	0.000	0.00	0.000	1497.69	10.06 31 0.024 0.026
480.0	475.8	9.988	0.000	0.000	0.00	0.000	1497.56	9.93 33 0.021 0.023
490.0	485.7	9.868	0.000	0.000	0.00	0.000	1497.22	9.81 55 0.074 0.075

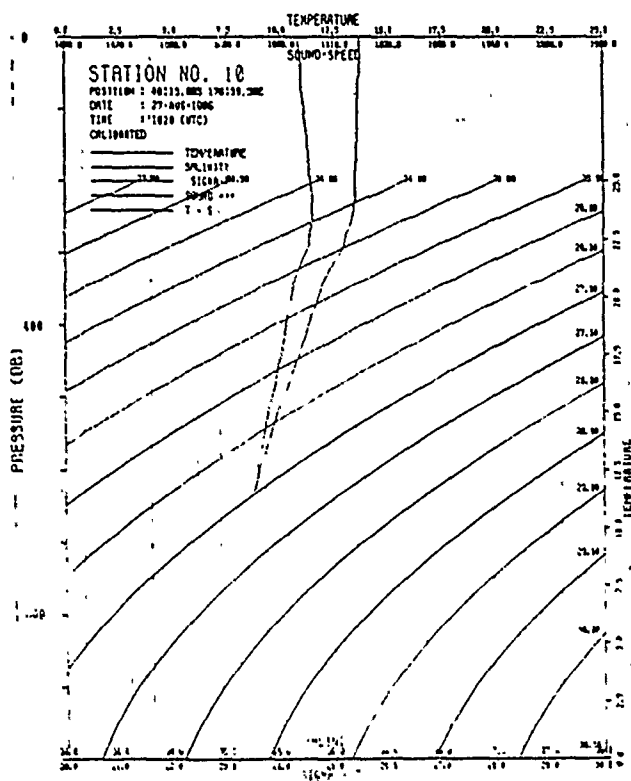
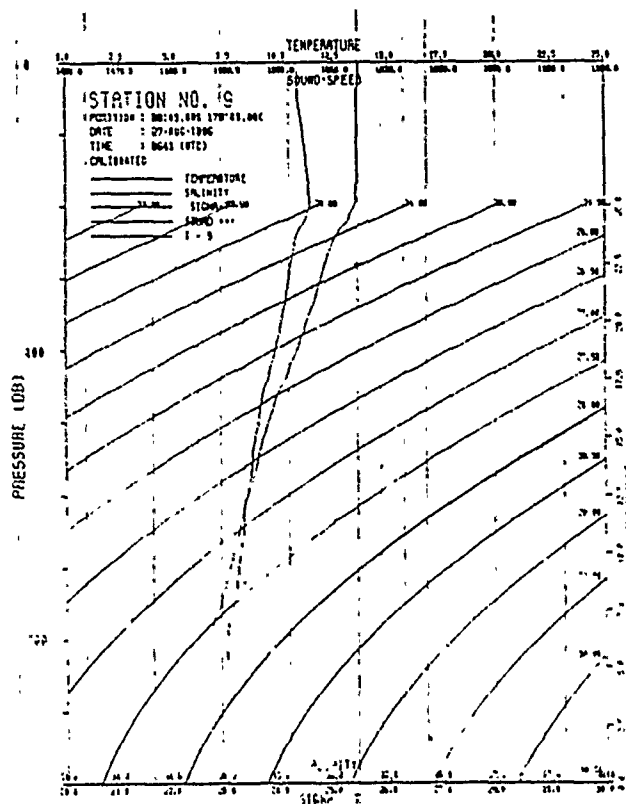


SHIP : HMAS COOK - Plessey  
 STATION NUMBER : 9 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 27-AUG-1986 (DAY NUMBER 239)  
 START TIME : 0643 GMT - Z  
 CRUISE : CK17/86  
 POSITION : 39:45.00S 170:09.00E  
 CAST DEPTH : 818 METRES  
 BOTTOM DEPTH : 848 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
0.0	0.0	13.688	0.000	0.000	0.00	0.000	1503.11	13.69 72 0.002 0.034
10.0	9.9	13.668	0.000	0.000	0.00	0.000	1503.17	13.67 62 0.014 0.059
20.0	19.8	13.621	0.000	0.000	0.00	0.000	1503.17	13.62 56 0.023 0.009
30.0	29.8	13.574	0.000	0.000	0.00	0.000	1503.19	13.57 60 0.008 0.006
40.0	39.7	13.555	0.000	0.000	0.00	0.000	1503.30	13.55 54 0.004 0.005
50.0	49.6	13.547	0.000	0.000	0.00	0.000	1503.43	13.54 54 0.002 0.004
60.0	59.5	13.543	0.000	0.000	0.00	0.000	1503.57	13.53 56 0.004 0.006
70.0	69.5	13.544	0.000	0.000	0.00	0.000	1503.75	13.53 57 0.004 0.006
80.0	79.4	13.547	0.000	0.000	0.00	0.000	1503.92	13.54 59 0.000 0.004
90.0	89.3	13.546	0.000	0.000	0.00	0.000	1504.06	13.53 57 0.002 0.003
100.0	99.2	13.547	0.000	0.000	0.00	0.000	1504.23	13.53 53 0.000 0.003
120.0	119.0	13.547	0.000	0.000	0.00	0.000	1504.54	13.53 59 0.000 0.002
140.0	138.9	13.535	0.000	0.000	0.00	0.000	1504.84	13.51 55 0.007 0.005
160.0	158.7	13.512	0.000	0.000	0.00	0.000	1505.10	13.49 54 0.005 0.003
180.0	178.5	13.506	0.000	0.000	0.00	0.000	1505.36	13.48 48 0.000 0.004
200.0	198.4	13.448	0.000	0.000	0.00	0.000	1505.50	13.42 50 0.014 0.022
220.0	218.2	13.123	0.000	0.000	0.00	0.000	1504.60	13.09 54 0.076 0.106
240.0	238.0	12.594	0.000	0.000	0.00	0.000	1503.09	12.56 53 0.072 0.082
260.0	257.9	12.304	0.000	0.000	0.00	0.000	1502.42	12.27 53 0.026 0.024
280.0	277.7	12.111	0.000	0.000	0.00	0.000	1502.04	12.07 61 0.034 0.037
300.0	297.5	11.887	0.000	0.000	0.00	0.000	1501.57	11.85 61 0.037 0.039
320.0	317.3	11.661	0.000	0.000	0.00	0.000	1501.10	11.62 59 0.022 0.023
340.0	337.1	11.472	0.000	0.000	0.00	0.000	1500.72	11.43 62 0.025 0.028
360.0	356.9	11.217	0.000	0.000	0.00	0.000	1500.14	11.17 53 0.037 0.037
380.0	376.8	10.990	0.000	0.000	0.00	0.000	1499.61	10.94 57 0.025 0.031
400.0	396.6	10.781	0.000	0.000	0.00	0.000	1499.16	10.73 53 0.041 0.045
420.0	416.4	10.438	0.000	0.000	0.00	0.000	1498.21	10.39 31 0.051 0.052
440.0	436.2	10.206	0.000	0.000	0.00	0.000	1497.66	10.15 30 0.052 0.062
460.0	456.0	9.852	0.000	0.000	0.00	0.000	1496.70	9.80 29 0.041 0.037
480.0	475.8	9.635	0.000	0.000	0.00	0.000	1496.23	9.58 32 0.005 0.005
500.0	495.6	9.446	0.000	0.000	0.00	0.000	1495.82	9.39 29 0.017 0.017
550.0	545.1	8.928	0.000	0.000	0.00	0.000	1494.69	8.87 34 0.027 0.031
600.0	594.6	8.445	0.000	0.000	0.00	0.000	1493.59	8.38 31 0.034 0.029
700.0	693.5	7.620	0.000	0.000	0.00	0.000	1492.08	7.55 31 0.014 0.008
800.0	792.4	6.617	0.000	0.000	0.00	0.000	1489.79	6.54 50 0.041 0.029
830.0	822.0	6.561	0.000	0.000	0.00	0.000	1490.01	6.48 202 0.004 0.005

SHIP : HMAS COOK - Plessey  
 STATION NUMBER : 10 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 27-AUG-1986 (DAY NUMBER 239)  
 START TIME : 1029 GMT - Z  
 CRUISE : CK17/86  
 POSITION : 40:15.80S 170:59.50E  
 CAST DEPTH : 620 METRES  
 BOTTOM DEPTH : 648 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
0.0	0.0	13.729	0.000	0.000	0.00	0.000	1503.28	13.73 7 0.000 0.004
10.0	9.9	13.729	0.000	0.000	0.00	0.000	1503.39	13.73 62 0.002 0.075
20.0	19.8	13.730	0.000	0.000	0.00	0.000	1503.57	13.73 54 0.002 0.027
30.0	29.8	13.729	0.000	0.000	0.00	0.000	1503.72	13.73 60 0.002 0.008
40.0	39.7	13.728	0.000	0.000	0.00	0.000	1503.87	13.72 56 0.002 0.004
50.0	49.6	13.703	0.000	0.000	0.00	0.000	1503.93	13.70 61 0.012 0.013
60.0	59.5	13.649	0.000	0.000	0.00	0.000	1503.93	13.64 63 0.017 0.014
70.0	69.5	13.626	0.000	0.000	0.00	0.000	1504.02	13.62 66 0.003 0.004
80.0	79.4	13.618	0.000	0.000	0.00	0.000	1504.15	13.61 63 0.000 0.004
90.0	89.3	13.610	0.000	0.000	0.00	0.000	1504.30	13.60 61 0.004 0.004
100.0	99.2	13.603	0.000	0.000	0.00	0.000	1504.41	13.59 64 0.007 0.005
120.0	119.0	13.578	0.000	0.000	0.00	0.000	1504.66	13.56 62 0.002 0.003
140.0	138.9	13.574	0.000	0.000	0.00	0.000	1504.97	13.55 70 0.009 0.011
160.0	158.7	13.531	0.000	0.000	0.00	0.000	1505.16	13.51 58 0.005 0.006
180.0	178.5	13.499	0.000	0.000	0.00	0.000	1505.34	13.47 44 0.016 0.018
200.0	198.4	13.446	0.000	0.000	0.00	0.000	1505.51	13.42 47 0.000 0.004
220.0	218.2	13.453	0.000	0.000	0.00	0.000	1505.85	13.42 57 0.004 0.006
240.0	238.0	13.396	0.000	0.000	0.00	0.000	1505.98	13.36 61 0.020 0.022
260.0	257.8	13.227	0.000	0.000	0.00	0.000	1505.69	13.19 58 0.029 0.032
280.0	277.7	13.031	0.000	0.000	0.00	0.000	1505.35	12.99 63 0.033 0.038
300.0	297.5	12.786	0.000	0.000	0.00	0.000	1504.73	12.75 60 0.084 0.104
320.0	317.3	12.308	0.000	0.000	0.00	0.000	1503.39	12.26 60 0.032 0.034
340.0	337.1	11.951	0.000	0.000	0.00	0.000	1502.45	11.91 60 0.032 0.036
360.0	356.9	11.741	0.000	0.000	0.00	0.000	1502.03	11.69 63 0.042 0.044
380.0	376.7	11.485	0.000	0.000	0.00	0.000	1501.41	11.44 50 0.039 0.044
400.0	396.5	11.291	0.000	0.000	0.00	0.000	1501.03	11.24 52 0.031 0.034
420.0	416.3	11.074	0.000	0.000	0.00	0.000	1500.57	11.02 36 0.022 0.026
440.0	436.2	10.853	0.000	0.000	0.00	0.000	1500.07	10.80 32 0.023 0.023
460.0	456.0	10.586	0.000	0.000	0.00	0.000	1499.41	10.53 30 0.019 0.011
480.0	475.8	10.383	0.000	0.000	0.00	0.000	1498.94	10.33 29 0.024 0.034
500.0	495.6	10.132	0.000	0.000	0.00	0.000	1498.36	10.07 32 0.031 0.042
550.0	545.0	9.547	0.000	0.000	0.00	0.000	1496.99	9.48 32 0.029 0.042
600.0	594.5	8.974	0.000	0.000	0.00	0.000	1495.67	8.91 35 0.014 0.016
630.0	624.2	8.666	0.000	0.000	0.00	0.000	1494.94	8.60 50 0.030 0.014

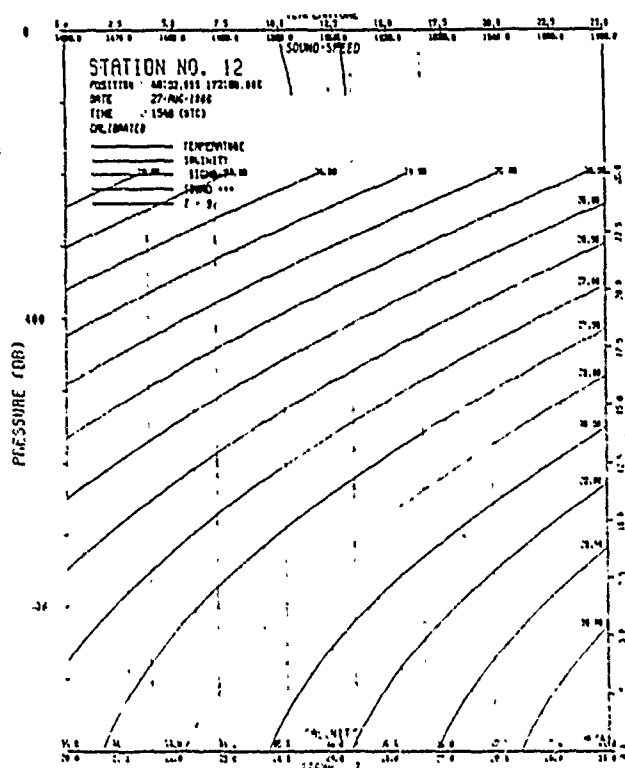
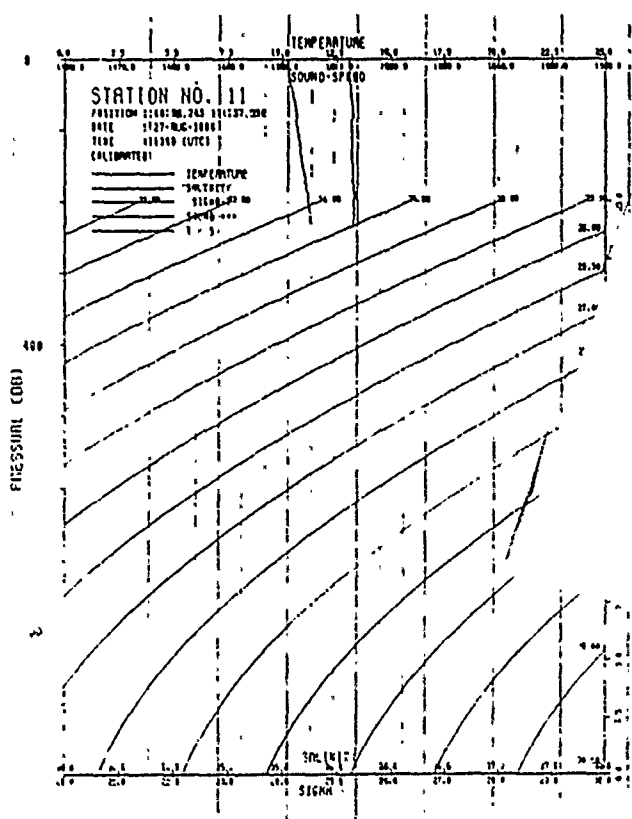


SHIP : HMAS COOK - Plessey  
 STATION NUMBER : 11 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 27-AUG-1986 (DAY NUMBER 239)  
 START TIME : 1340 GMT - Z  
 CRUISE : CRL7/86  
 POSITION : 40:38.24S 171:37.53E  
 CAST DEPTH : 230 METRES  
 BOTTOM DEPTH : 256 METRES

PRESS	DEPTH	TEMP	Sound	Pot.Temp
5.0	5.0	13.042	0.000	0.000
10.0	9.9	13.052	0.000	0.000
15.0	14.9	13.061	0.000	0.000
20.0	19.8	13.061	0.000	0.000
25.0	24.8	13.067	0.000	0.000
30.0	29.8	13.065	0.000	0.000
35.0	34.7	13.103	0.000	0.000
40.0	39.7	13.112	0.000	0.000
45.0	44.6	13.121	0.000	0.000
50.0	49.6	13.132	0.000	0.000
55.0	54.6	13.154	0.000	0.000
60.0	59.5	13.180	0.000	0.000
65.0	64.5	13.190	0.000	0.000
70.0	69.4	13.198	0.000	0.000
75.0	74.4	13.193	0.000	0.000
80.0	79.4	13.188	0.000	0.000
85.0	84.3	13.164	0.000	0.000
90.0	89.3	13.162	0.000	0.000
95.0	94.2	13.158	0.000	0.000
100.0	99.2	13.158	0.000	0.000
105.0	104.2	13.162	0.000	0.000
110.0	109.1	13.162	0.000	0.000
115.0	114.1	13.162	0.000	0.000
120.0	119.0	13.163	0.000	0.000
125.0	124.0	13.165	0.000	0.000
130.0	129.0	13.172	0.000	0.000
135.0	133.9	13.173	0.000	0.000
140.0	138.9	13.173	0.000	0.000
145.0	143.8	13.186	0.000	0.000
150.0	148.8	13.189	0.000	0.000
155.0	153.7	13.197	0.000	0.000
160.0	158.7	13.228	0.000	0.000
165.0	163.7	13.226	0.000	0.000
170.0	168.6	13.223	0.000	0.000
175.0	173.6	13.228	0.000	0.000
180.0	178.5	13.244	0.000	0.000
185.0	183.5	13.270	0.000	0.000
190.0	188.4	13.279	0.000	0.000
195.0	193.4	13.262	0.000	0.000
200.0	198.4	13.253	0.000	0.000
205.0	203.3	13.253	0.000	0.000
210.0	208.3	13.253	0.000	0.000
215.0	213.2	13.258	0.000	0.000
220.0	218.2	13.234	0.000	0.000
225.0	223.1	13.223	0.000	0.000
230.0	228.1	13.180	0.000	0.000

SHIP : HMAS COOK - Plessey  
 STATION NUMBER : 12 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 27-AUG-1986 (DAY NUMBER 239)  
 START TIME : 1548 GMT - Z  
 CRUISE : CRL7/86  
 POSITION : 40:52.05S 172:00.08E  
 CAST DEPTH : 90 METRES  
 BOTTOM DEPTH : 103 METRES

PRESS	DEPTH	TEMP	Sound	Pot.Temp
5.0	5.0	12.836	0.000	0.000
10.0	9.9	12.838	0.000	0.000
15.0	14.9	12.834	0.000	0.000
20.0	19.8	12.853	0.000	0.000
25.0	24.8	12.897	0.000	0.000
30.0	29.8	12.898	0.000	0.000
35.0	34.7	12.910	0.000	0.000
40.0	39.7	12.939	0.000	0.000
45.0	44.6	12.998	0.000	0.000
50.0	49.6	13.020	0.000	0.000
55.0	54.6	13.037	0.000	0.000
60.0	59.5	13.041	0.000	0.000
65.0	64.5	13.038	0.000	0.000
70.0	69.4	13.045	0.000	0.000
75.0	74.4	13.056	0.000	0.000
80.0	79.4	13.071	0.000	0.000
85.0	84.3	13.089	0.000	0.000
90.0	89.3	13.092	0.000	0.000





SHIP : 9995 COOR - Please  
 STATION NUMBER : 13 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 05-SEP-1986 (DAY NUMBER 248)  
 START TIME : 0852 GMT - 2  
 CRUISE : C817/86  
 POSITION : 37.115 155.162 44.69E  
 COUNTRY : 2400 METERS  
 BOTTOM DEPTH : 2862 METERS

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
0.0	0.0	15.293	0.000	0.000	0.00	0.000	1508.43	15.29 21 0.008 0.017
10.0	9.9	15.274	0.000	0.000	0.00	0.000	1508.47	15.27 37 0.013 0.025
20.0	19.9	15.098	0.000	0.000	0.00	0.000	1508.02	15.10 54 0.062 0.028
30.0	29.8	14.926	0.000	0.000	0.00	0.000	1507.64	14.92 51 0.033 0.028
40.0	39.7	14.786	0.000	0.000	0.00	0.000	1507.36	14.78 51 0.042 0.035
50.0	49.6	14.681	0.000	0.000	0.00	0.000	1507.17	14.67 35 0.032 0.038
60.0	59.5	14.527	0.000	0.000	0.00	0.000	1506.80	14.52 50 0.057 0.064
70.0	69.5	14.449	0.000	0.000	0.00	0.000	1506.75	14.44 35 0.010 0.029
80.0	79.4	14.479	0.000	0.000	0.00	0.000	1507.01	14.47 38 0.007 0.012
90.0	89.3	14.397	0.000	0.000	0.00	0.000	1506.93	14.38 37 0.029 0.029
100.0	99.2	14.368	0.000	0.000	0.00	0.000	1506.96	14.35 28 0.007 0.006
120.0	119.1	14.190	0.000	0.000	0.00	0.000	1506.66	14.17 36 0.036 0.038
140.0	138.9	14.075	0.000	0.000	0.00	0.000	1506.61	14.05 61 0.031 0.033
160.0	158.8	13.882	0.000	0.000	0.00	0.000	1506.27	13.86 59 0.041 0.041
180.0	178.6	13.707	0.000	0.000	0.00	0.000	1505.98	13.68 58 0.045 0.055
200.0	198.4	13.543	0.000	0.000	0.00	0.000	1505.41	13.41 51 0.059 0.069
220.0	218.3	13.142	0.000	0.000	0.00	0.000	1504.67	13.11 67 0.047 0.041
240.0	238.1	13.077	0.000	0.000	0.00	0.000	1504.84	13.04 61 0.010 0.010
260.0	257.9	12.732	0.000	0.000	0.00	0.000	1503.91	12.70 60 0.052 0.054
280.0	277.7	12.589	0.000	0.000	0.00	0.000	1503.77	12.55 59 0.005 0.009
300.0	297.6	12.267	0.000	0.000	0.00	0.000	1502.94	12.23 52 0.023 0.019
320.0	317.4	11.855	0.000	0.000	0.00	0.000	1501.76	11.81 54 0.045 0.049
340.0	337.2	11.535	0.000	0.000	0.00	0.000	1500.93	11.49 62 0.040 0.036
360.0	357.0	11.295	0.000	0.000	0.00	0.000	1500.41	11.25 63 0.028 0.029
380.0	376.8	11.055	0.000	0.000	0.00	0.000	1499.90	11.01 57 0.021 0.016
400.0	396.6	10.789	0.000	0.000	0.00	0.000	1499.11	10.74 47 0.101 0.110
420.0	416.5	10.420	0.000	0.000	0.00	0.000	1498.11	10.37 31 0.060 0.062
440.0	436.3	10.200	0.000	0.000	0.00	0.000	1497.62	10.15 34 0.045 0.056
460.0	456.1	9.911	0.000	0.000	0.00	0.000	1496.90	9.86 33 0.048 0.049
480.0	475.9	9.708	0.000	0.000	0.00	0.000	1495.44	9.65 36 0.058 0.058
500.0	495.7	9.356	0.000	0.000	0.00	0.000	1495.44	9.30 31 0.044 0.040
550.0	545.2	8.792	0.000	0.000	0.00	0.000	1494.14	8.73 34 0.036 0.038
600.0	594.7	8.262	0.000	0.000	0.00	0.000	1492.92	8.20 33 0.037 0.029
700.0	693.6	7.572	0.000	0.000	0.00	0.000	1491.87	7.50 32 0.020 0.020
800.0	792.5	6.826	0.000	0.000	0.00	0.000	1490.54	6.75 32 0.024 0.024
900.0	891.4	5.923	0.000	0.000	0.00	0.000	1488.59	5.84 28 0.022 0.015
1000.0	990.2	5.410	0.000	0.000	0.00	0.000	1488.20	5.32 26 0.008 0.006
1100.0	1089.0	4.860	0.000	0.000	0.00	0.000	1487.58	4.77 31 0.013 0.017
1200.0	1187.7	4.402	0.000	0.000	0.00	0.000	1487.38	4.31 34 0.003 0.004
1300.0	1286.3	3.905	0.000	0.00	0.00	0.000	1487.00	3.80 32 0.017 0.015
1400.0	1385.0	3.499	0.000	0.00	0.00	0.000	1486.93	3.39 39 0.015 0.010
1500.0	1483.5	3.245	0.000	0.00	0.00	0.000	1487.57	3.13 30 0.015 0.012
1600.0	1582.1	2.989	0.000	0.00	0.00	0.000	1488.17	2.87 31 0.001 0.001
1700.0	1680.5	2.821	0.000	0.00	0.00	0.000	1489.14	2.70 34 0.005 0.004
1800.0	1779.0	2.638	0.000	0.00	0.00	0.000	1490.00	2.51 33 0.001 0.000
1900.0	1877.4	2.540	0.000	0.00	0.00	0.000	1491.30	2.40 32 0.004 0.004
2000.0	1975.7	2.446	0.000	0.00	0.00	0.000	1492.58	2.30 35 0.005 0.004
2100.0	2074.0	2.354	0.000	0.00	0.00	0.000	1493.89	2.20 35 0.004 0.004
2200.0	2172.3	2.239	0.000	0.00	0.00	0.000	1495.12	2.08 32 0.001 0.001
2300.0	2270.5	2.165	0.000	0.00	0.00	0.000	1496.46	2.00 31 0.005 0.000
2400.0	2368.8	2.043	0.000	0.00	0.00	0.000	1497.64	1.87 33 0.007 0.005
2500.0	2466.8	1.906	0.000	0.00	0.00	0.000	1498.76	1.73 32 0.000 0.003

SHIP : 9995 COOR - Please  
 STATION NUMBER : 14 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 05-SEP-1986 (DAY NUMBER 248)  
 START TIME : 2140 GMT - 2  
 CRUISE : C817/86  
 POSITION : 36.115 155.162 33.50E  
 COUNTRY : 4500 METERS  
 BOTTOM DEPTH : 4780 METERS

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
10.0	9.9	15.901	0.000	0.000	0.00	0.000	1510.39	15.90 53 0.043 0.027
20.0	19.9	15.671	0.000	0.000	0.00	0.000	1509.81	15.67 63 0.113 0.112
30.0	29.8	15.502	0.000	0.000	0.00	0.000	1509.51	15.50 64 0.010 0.013
40.0	39.7	15.412	0.000	0.000	0.00	0.000	1509.25	15.41 57 0.004 0.004
50.0	49.6	15.468	0.000	0.000	0.00	0.000	1509.23	15.46 52 0.000 0.004
60.0	59.5	15.468	0.000	0.000	0.00	0.000	1509.89	15.46 55 0.000 0.005
70.0	69.5	15.467	0.000	0.000	0.00	0.000	1510.05	15.46 53 0.003 0.006
80.0	79.4	15.453	0.000	0.000	0.00	0.000	1510.16	15.44 59 0.005 0.004
90.0	89.3	15.411	0.000	0.000	0.00	0.000	1510.23	15.42 53 0.010 0.010
100.0	99.2	15.402	0.000	0.000	0.00	0.000	1510.32	15.39 51 0.004 0.004
120.0	119.1	15.357	0.000	0.000	0.00	0.000	1510.52	15.34 55 0.005 0.004
140.0	138.9	15.280	0.000	0.000	0.00	0.000	1510.61	15.27 52 0.010 0.010
160.0	158.8	15.167	0.000	0.000	0.00	0.000	1510.58	15.14 60 0.020 0.017
180.0	178.6	14.967	0.000	0.000	0.00	0.000	1510.29	14.91 66 0.019 0.022
200.0	198.4	14.801	0.000	0.000	0.00	0.000	1510.41	14.77 63 0.001 0.005
220.0	218.3	14.562	0.000	0.00	0.00	0.000	1509.50	14.53 49 0.045 0.049
240.0	238.1	14.338	0.000	0.00	0.00	0.000	1509.13	14.30 52 0.004 0.003
260.0	257.9	14.193	0.000	0.00	0.00	0.000	1508.96	14.15 66 0.057 0.063
280.0	277.7	13.911	0.000	0.000	0.00	0.000	1508.42	13.90 58 0.021 0.017
300.0	297.6	13.916	0.000	0.000	0.00	0.000	1508.69	13.87 61 0.010 0.014
320.0	317.4	13.803	0.000	0.000	0.00	0.000	1508.69	13.76 63 0.014 0.047
340.0	337.2	13.726	0.000	0.00	0.00	0.000	1507.24	13.70 50 0.057 0.050
360.0	357.0	13.187	0.000	0.000	0.00	0.000	1507.09	13.14 60 0.011 0.001
380.0	376.8	12.632	0.000	0.000	0.00	0.000	1505.37	12.54 64 0.104 0.112
400.0	396.6	12.310	0.000	0.00	0.00	0.000	1503.94	12.36 65 0.036 0.040
420.0	416.5	11.875	0.000	0.000	0.00	0.000	1502.68	12.42 61 0.015 0.041
440.0	436.3	11.370	0.000	0.000	0.00	0.000	1501.81	11.31 27 0.083 0.081
460.0	456.1	11.082	0.000	0.000	0.00	0.000	1501.18	11.02 32 0.027 0.030
480.0	475.9	10.690	0.000	0.000	0.00	0.000	1500.00	10.63 32 0.068 0.063
500.0	495.7	10.337	0.000	0.000	0.00	0.000	1499.09	10.28 32 0.036 0.040
550.0	545.2	9.651	0.000	0.000	0.00	0.000	1497.39	9.59 33 0.029 0.025
600.0	594.7	8.967	0.000	0.000	0.00	0.000	1495.55	8.90 30 0.053 0.058
700.0	693.6	8.181	0.000	0.000	0.00	0.000	1494.23	8.11 31 0.020 0.022
800.0	792.5	7.271	0.000	0.000	0.00	0.000	1492.31	7.19 34 0.010 0.012
900.0	891.4	6.407	0.000	0.000	0.00	0.000	1490.48	6.32 34 0.041 0.038
1000.0	990.2	5.735	0.000	0.000	0.00	0.000	1489.46	5.65 29 0.012 0.018
1100.0	1089.0	5.055	0.000	0.000	0.00	0.000	1488.38	4.96 28 0.021 0.012
1200.0	1187.7	4.618	0.000	0.000	0.00	0.000	1488.24	4.52 33 0.012 0.009
1300.0	1286.3	4.298	0.000	0.000	0.00	0.000	1488.19	4.10 31 0.015 0.012
1400.0	1385.0	3.765	0.000	0.000	0.00	0.000	1488.04	3.65 28 0.010 0.009
1500.0	1483.5	3.411	0.000	0.000	0.00	0.000	1488.20	3.50 26 0.016 0.008
1600.0	1582.1	3.119	0.000	0.000	0.00	0.000	1488.66	3.20 29 0.008 0.005
1700.0	1680.5	2.899	0.000	0.000	0.00	0.000	1489.47	2.78 24 0.004 0.000
1800.0	1779.0	2.726	0.000	0.000	0.00	0.000	1490.41	2.60 29 0.006 0.000
1900.0	1877.4	2.580	0.000	0.000	0.00	0.000	1491.42	2.44 29 0.005 0.004
2000.0	1975.7	2.464	0.000	0.000	0.00	0.000	1492.65	2.22 35 0.004 0.004
2100.0	2074.0	2.359	0.000	0.000	0.00	0.000	1493.93	2.21 35 0.004 0.003
2200.0	2172.3	2.240	0.000	0.000	0.00	0.000	1495.21	2.12 29 0.001 0.001
2300.0	2270.5	2.185	0.000	0.000	0.00	0.000	1496.54	2.03 34 0.005 0.003
2400.0	2368.8	2.108	0.000	0.000	0.00	0.000	1497.93	1.93 38 0.001 0.001
2500.0	2466.8	2.024	0.000	0.000	0.00	0.000	1499.25	1.84 27 0.005 0.004
2500.0	2565.8	1.938	0.000	0.000	0.00	0.000	1500.57	1.75 34 0.008 0.004

2600.0 2564.8 1.804 0.000 0.000 0.00 0.000 1499.97 1.62 32 0.000 0.001  
 2700.0 2662.9 1.705 0.000 0.000 0.00 0.000 1501.27 1.51 30

SHIP : HMAS COOK - Plesey  
 STATION NUMBER : 15 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 06-SEP-1986 (DAY NUMBER 249)  
 START TIME : 2347 GHT = Z  
 CRUISE : CR17/86  
 POSITION : 35:07.09S 159:00.40E  
 CAST DEPTH : 4180 METRES  
 BOTTOM DEPTH : 4332 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
10.0	9.9	16.095	0.000	0.000	0.00	0.000	1511.04	16.09
20.0	19.9	16.095	0.000	0.000	0.00	0.000	1511.19	16.09
30.0	29.8	16.095	0.000	0.000	0.00	0.000	1511.37	16.09
40.0	39.7	16.065	0.000	0.000	0.00	0.000	1511.50	16.08
50.0	49.6	16.069	0.000	0.000	0.00	0.000	1511.62	16.06
60.0	59.6	15.931	0.000	0.000	0.00	0.000	1511.27	15.92
70.0	69.5	15.537	0.000	0.000	0.00	0.000	1510.25	15.53
80.0	79.4	15.456	0.000	0.000	0.00	0.000	1510.19	15.44
90.0	89.3	15.433	0.000	0.000	0.00	0.000	1510.31	15.42
100.0	99.2	15.409	0.000	0.000	0.00	0.000	1510.40	15.39
120.0	119.1	15.400	0.000	0.000	0.00	0.000	1510.70	15.38
140.0	138.9	15.393	0.000	0.000	0.00	0.000	1511.00	15.37
160.0	158.8	15.356	0.000	0.000	0.00	0.000	1511.18	15.33
180.0	178.6	15.271	0.000	0.000	0.00	0.000	1511.20	15.24
200.0	198.4	14.867	0.000	0.000	0.00	0.000	1510.10	14.84
220.0	218.3	14.359	0.000	0.000	0.00	0.000	1508.78	14.33
240.0	238.1	14.147	0.000	0.000	0.00	0.000	1508.42	14.11
260.0	257.9	13.676	0.000	0.000	0.00	0.000	1507.05	13.64
280.0	277.8	13.256	0.000	0.000	0.00	0.000	1499.11	13.64
300.0	297.6	12.628	0.000	0.000	0.00	0.000	1505.94	12.22
320.0	317.4	12.579	0.000	0.000	0.00	0.000	1504.36	12.54
340.0	337.2	12.206	0.000	0.000	0.00	0.000	1503.33	12.16
360.0	357.1	11.881	0.000	0.000	0.00	0.000	1502.46	11.83
380.0	376.9	11.440	0.000	0.000	0.00	0.000	1501.24	11.39
400.0	396.7	11.003	0.000	0.000	0.00	0.000	1499.97	10.95
420.0	416.5	10.689	0.000	0.000	0.00	0.000	1499.11	10.64
440.0	436.3	10.400	0.000	0.000	0.00	0.000	1498.34	10.35
460.0	456.1	10.114	0.000	0.000	0.00	0.000	1497.63	10.06
480.0	475.9	9.803	0.000	0.000	0.00	0.000	1496.79	9.75
500.0	495.7	9.510	0.000	0.000	0.00	0.000	1496.05	9.45
550.0	545.3	9.090	0.000	0.000	0.00	0.000	1495.26	9.03
600.0	594.7	8.615	0.000	0.000	0.00	0.000	1494.27	8.55
700.0	693.7	7.743	0.000	0.000	0.00	0.000	1492.52	7.67
800.0	792.6	6.874	0.000	0.000	0.00	0.000	1490.75	6.80
900.0	891.5	6.244	0.000	0.000	0.00	0.000	1489.82	6.16
1000.0	990.3	5.541	0.000	0.000	0.00	0.000	1488.74	5.45
1100.0	1089.1	4.940	0.000	0.000	0.00	0.000	1487.90	4.85
1200.0	1187.8	4.364	0.000	0.000	0.00	0.000	1487.20	4.27
1300.0	1286.5	3.962	0.000	0.000	0.00	0.000	1487.18	3.86
1400.0	1385.1	3.524	0.000	0.000	0.00	0.000	1487.27	3.48
1500.0	1483.7	3.185	0.000	0.000	0.00	0.000	1487.74	3.17
1600.0	1582.3	3.039	0.000	0.000	0.00	0.000	1488.36	2.92
1700.0	1680.7	2.814	0.000	0.000	0.00	0.000	1489.12	2.69
1800.0	1779.2	2.634	0.000	0.000	0.00	0.000	1490.00	2.51
1900.0	1877.6	2.511	0.000	0.000	0.00	0.000	1491.16	2.38
2000.0	1975.9	2.413	0.000	0.000	0.00	0.000	1492.43	2.27
2100.0	2074.2	2.316	0.000	0.000	0.00	0.000	1493.71	2.17
2200.0	2172.5	2.244	0.000	0.000	0.00	0.000	1495.12	2.09
2300.0	2270.7	2.119	0.000	0.000	0.00	0.000	1496.37	1.98
2400.0	2368.9	2.041	0.000	0.000	0.00	0.000	1497.62	1.87
2500.0	2467.0	1.967	0.000	0.000	0.00	0.000	1499.00	1.79
2600.0	2565.1	1.879	0.000	0.000	0.00	0.000	1500.32	1.69

SHIP : HMAS COOK - Plesey  
 STATION NUMBER : 16 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 07-SEP-1986 (DAY NUMBER 250)  
 START TIME : 1425 GHT = Z  
 CRUISE : CR17/86  
 POSITION : 35:49.56S 158:05.75E  
 CAST DEPTH : 4180 METRES  
 BOTTOM DEPTH : 4674 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
10.0	9.9	17.045	0.000	0.000	0.00	0.000	1513.99	17.04
20.0	19.9	17.048	0.000	0.000	0.00	0.000	1514.15	17.04
30.0	29.8	17.050	0.000	0.000	0.00	0.000	1514.30	17.04
40.0	39.7	17.050	0.000	0.000	0.00	0.000	1514.49	17.04
50.0	49.6	17.049	0.000	0.000	0.00	0.000	1514.64	17.04
60.0	59.6	17.048	0.000	0.000	0.00	0.000	1514.79	17.04
70.0	69.5	17.005	0.000	0.000	0.00	0.000	1514.78	16.99
80.0	79.4	16.782	0.000	0.000	0.00	0.000	1514.24	16.77
90.0	89.3	16.476	0.000	0.000	0.00	0.000	1513.41	16.46
100.0	99.2	16.225	0.000	0.000	0.00	0.000	1512.80	16.19
120.0	119.1	15.815	0.000	0.000	0.00	0.000	1511.90	15.81
140.0	138.9	15.456	0.000	0.000	0.00	0.000	1511.07	15.44
160.0	158.8	15.372	0.000	0.000	0.00	0.000	1511.15	15.35
180.0	178.6	15.031	0.000	0.000	0.00	0.000	1510.42	15.00
200.0	198.4	14.927	0.000	0.000	0.00	0.000	1509.94	14.66
220.0	218.3	14.692	0.000	0.000	0.00	0.000	1510.06	14.58
240.0	238.1	14.618	0.000	0.000	0.00	0.000	1509.69	14.38
260.0	257.9	14.414	0.000	0.000	0.00	0.000	1507.87	13.78
280.0	277.8	14.022	0.000	0.000	0.00	0.000	1507.05	13.11
300.0	297.6	13.150	0.000	0.000	0.00	0.000	1505.95	12.11
320.0	317.4	12.569	0.000	0.000	0.00	0.000	1505.64	12.92
340.0	337.2	12.558	0.000	0.000	0.00	0.000	1504.52	12.53
360.0	357.1	12.214	0.000	0.000	0.00	0.000	1503.65	12.17
380.0	376.9	11.527	0.000	0.000	0.00	0.000	1501.56	11.48
400.0	396.7	11.335	0.000	0.000	0.00	0.000	1501.17	11.28
420.0	416.5	11.011	0.000	0.000	0.00	0.000	1500.21	11.02
440.0	436.3	10.750	0.000	0.000	0.00	0.000	1499.62	10.70
460.0	456.1	10.416	0.000	0.000	0.00	0.000	1498.73	10.36
480.0	475.9	10.134	0.000	0.000	0.00	0.000	1498.07	10.06
500.0	495.7	9.810	0.000	0.000	0.00	0.000	1497.13	9.75
550.0	545.3	9.113	0.000	0.000	0.00	0.000	1495.34	9.05
600.0	594.8	8.552	0.000	0.000	0.00	0.000	1494.05	8.49
700.0	693.7	7.510	0.000	0.000	0.00	0.000	1491.59	7.44
800.0	792.6	6.763	0.000	0.000	0.00	0.000	1489.24	6.69
900.0	891.5	5.935	0.000	0.000	0.00	0.000	1488.44	5.85
1000.0	990.3	5.286	0.000	0.000	0.00	0.000	1487.70	5.20
1100.0	1089.1	4.732	0.000	0.000	0.00	0.000	1487.05	4.64
1200.0	1187.8	4.263	0.000	0.000	0.00	0.000	1486.77	4.17
1300.0	1286.5	3.883	0.000	0.000	0.00	0.000	1486.87	3.78
1400.0	1385.1	3.510	0.000	0.000	0.00	0.000	1486.98	3.41
1500.0	1483.7	3.181	0.000	0.000	0.00	0.000	1487.31	3.07
1600.0	1582.3	2.951	0.000	0.000	0.00	0.000	1488.00	2.84
1700.0	1680.8	2.752	0.000	0.000	0.00	0.000	1488.84	2.63
1800.0	1779.2	2.603	0.000	0.000	0.00	0.000	1489.88	2.47
1900.0	1877.6	2.455	0.000	0.000	0.00	0.000	1490.94	2.32
2000.0	1976.0	2.371	0.000	0.000	0.00	0.000	1492.26	2.23
2100.0	2074.3	2.288	0.000	0.000	0.00	0.000	1493.61	2.14
2200.0	2172.6	2.236	0.000	0.000	0.00	0.000	1494.94	2.05
2300.0	2270.8	2.186	0.000	0.000	0.00	0.000	1496.21	1.94
2400.0	2369.0	2.099	0.000	0.000	0.00	0.000	1497.48	1.84
2500.0	2467.1	1.997	0.000	0.000	0.00	0.000	1498.72	1.73
2600.0	2565.2	1.830	0.000	0.000	0.00	0.000	1500.08	1.64

2700.0	2663.1	1.813	0.000	0.000	0.00	0.000	1501.73	1.62	21.0003	0.0021
2800.0	2761.1	1.718	0.000	0.000	0.00	0.000	1502.98	1.52	19.0005	0.0019
2900.0	2859.1	1.634	0.000	0.000	0.00	0.000	1504.35	1.42	29.0004	0.0055
3000.0	2957.0	1.541	0.000	0.000	0.00	0.000	1505.65	1.32	26.0002	0.0055
3100.0	3054.9	1.462	0.000	0.000	0.00	0.000	1507.02	1.24	18.0003	0.0044
3200.0	3152.7	1.406	0.000	0.000	0.00	0.000	1508.49	1.17	32.0006	0.0044
3300.0	3250.5	1.343	0.000	0.000	0.00	0.000	1509.93	1.10	28.0005	0.0033
3400.0	3348.2	1.306	0.000	0.000	0.00	0.000	1511.45	1.05	29.0005	0.0033
3500.0	3445.9	1.259	0.000	0.000	0.00	0.000	1512.99	1.00	30.0005	0.0033
3600.0	3543.5	1.219	0.000	0.000	0.00	0.000	1514.59	0.95	31.0011	0.0035
3700.0	3641.1	1.203	0.000	0.000	0.00	0.000	1516.20	0.92	23.0004	0.0034
3800.0	3738.7	1.189	0.000	0.000	0.00	0.000	1517.87	0.90	28.0003	0.0033
3900.0	3836.2	1.184	0.000	0.000	0.00	0.000	1519.54	0.88	28.0004	0.0033
4000.0	3933.7	1.173	0.000	0.000	0.00	0.000	1521.24	0.86	23.0004	0.0031
4100.0	4031.1	1.164	0.000	0.000	0.00	0.000	1523.00	0.84	25.0004	0.0036
4200.0	4128.5	1.161	0.000	0.000	0.00	0.000	1524.67	0.83	25.0004	0.0036
4300.0	4225.8	1.154	0.000	0.000	0.00	0.000	1526.40	0.81	24.0004	0.0034
4340.0	4264.7	1.157	0.000	0.000	0.00	0.000	1527.01	0.80	4.0000	0.0000

SHIP : HMAS COOK - Plessey  
 STATION NUMBER : 17 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 08-SEP-1986 (DAY NUMBER 251)  
 START TIME : 0413 GMT - 2  
 CRUISE : CK17/86  
 POSITION : 35128.91S 157.01.49E  
 CAST DEPTH : 0 METRES  
 BOTTOM DEPTH : 4690 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
10.0	9.9	17.949	0.000	0.000	0.00	0.000	1516.64	17.95 65 0.005 0.030
20.0	19.9	17.945	0.000	0.000	0.00	0.000	1516.79	17.94 66 0.003 0.096
30.0	29.8	17.921	0.000	0.000	0.00	0.000	1516.85	17.92 69 0.031 0.030
40.0	39.7	17.848	0.000	0.000	0.00	0.000	1516.83	17.84 59 0.006 0.008
50.0	49.6	17.840	0.000	0.000	0.00	0.000	1516.93	17.83 54 0.012 0.018
60.0	59.6	17.797	0.000	0.000	0.00	0.000	1517.01	17.79 46 0.004 0.005
70.0	69.5	17.795	0.000	0.000	0.00	0.000	1517.15	17.78 38 0.000 0.003
80.0	79.4	17.795	0.000	0.000	0.00	0.000	1517.33	17.78 44 0.000 0.004
90.0	89.3	17.794	0.000	0.000	0.00	0.000	1517.46	17.78 43 0.002 0.004
100.0	99.2	17.773	0.000	0.000	0.00	0.000	1517.57	17.76 52 0.026 0.027
120.0	119.1	17.680	0.000	0.000	0.00	0.000	1517.68	17.66 52 0.006 0.007
140.0	138.9	17.593	0.000	0.000	0.00	0.000	1517.69	17.57 50 0.056 0.085
160.0	158.8	17.118	0.000	0.000	0.00	0.000	1516.56	17.09 55 0.067 0.089
180.0	178.6	16.496	0.000	0.000	0.00	0.000	1514.87	16.47 47 0.109 0.094
200.0	198.5	15.944	0.000	0.000	0.00	0.000	1513.57	15.91 68 0.086 0.082
220.0	218.3	15.477	0.000	0.000	0.00	0.000	1513.38	15.44 51 0.065 0.084
240.0	238.1	14.837	0.000	0.000	0.00	0.000	1510.66	14.80 90 0.038 0.048
260.0	257.9	14.315	0.000	0.000	0.00	0.000	1509.15	14.28 53 0.086 0.098
280.0	277.8	13.731	0.000	0.000	0.00	0.000	1507.54	13.69 57 0.084 0.078
300.0	297.6	13.204	0.000	0.000	0.00	0.000	1506.02	13.16 54 0.111 0.123
320.0	317.4	12.715	0.000	0.000	0.00	0.000	1504.72	12.67 44 0.047 0.049
340.0	337.3	12.350	0.000	0.000	0.00	0.000	1503.79	12.30 52 0.029 0.029
360.0	357.1	11.978	0.000	0.000	0.00	0.000	1502.76	11.93 58 0.033 0.033
380.0	376.9	11.635	0.000	0.000	0.00	0.000	1501.88	11.59 45 0.058 0.064
400.0	396.7	11.291	0.000	0.000	0.00	0.000	1500.96	11.24 49 0.038 0.044
420.0	416.5	11.057	0.000	0.000	0.00	0.000	1500.43	11.00 35 0.020 0.024
440.0	436.3	10.682	0.000	0.000	0.00	0.000	1499.33	10.63 30 0.051 0.061
460.0	456.2	10.266	0.000	0.000	0.00	0.000	1498.18	10.21 33 0.051 0.056
480.0	476.0	9.950	0.000	0.000	0.00	0.000	1497.34	9.89 34 0.027 0.027
500.0	495.8	9.639	0.000	0.000	0.00	0.000	1496.48	9.58 32 0.040 0.039
550.0	545.3	8.992	0.000	0.000	0.00	0.000	1494.85	8.93 26 0.034 0.029
600.0	594.8	8.504	0.000	0.000	0.00	0.000	1493.81	8.44 28 0.015 0.013
700.0	693.7	7.433	0.000	0.000	0.00	0.000	1491.26	7.36 31 0.029 0.022
800.0	792.7	6.504	0.000	0.000	0.00	0.000	1489.31	6.43 28 0.014 0.013
900.0	891.5	5.735	0.000	0.000	0.00	0.000	1487.84	5.66 32 0.020 0.015
1000.0	990.4	5.222	0.000	0.000	0.00	0.000	1487.41	5.14 31 0.012 0.011
1100.0	1089.1	4.700	0.000	0.000	0.00	0.000	1486.95	4.61 25 0.011 0.011
1200.0	1187.9	4.182	0.000	0.000	0.00	0.000	1486.49	4.09 32 0.013 0.007
1300.0	1286.6	3.683	0.000	0.000	0.00	0.000	1486.57	3.70 26 0.014 0.010
1400.0	1385.2	3.470	0.000	0.000	0.00	0.000	1486.83	3.36 26 0.010 0.009
1500.0	1483.8	3.153	0.000	0.000	0.00	0.000	1487.15	3.04 31 0.010 0.007
1600.0	1582.3	2.912	0.000	0.000	0.00	0.000	1487.83	2.80 42 0.011 0.008
1700.0	1680.8	2.706	0.000	0.000	0.00	0.000	1488.65	2.58 25 0.009 0.005
1800.0	1779.3	2.585	0.000	0.000	0.00	0.000	1489.78	2.46 34 0.007 0.004
1900.0	1877.7	2.462	0.000	0.000	0.00	0.000	1490.95	2.33 25 0.001 0.000
2000.0	1976.0	2.354	0.000	0.000	0.00	0.000	1492.20	2.21 26 0.005 0.003
2100.0	2074.3	2.261	0.000	0.000	0.00	0.000	1493.45	2.11 26 0.003 0.004
2200.0	2172.6	2.182	0.000	0.000	0.00	0.000	1494.86	2.03 30 0.004 0.005
2300.0	2270.8	2.116	0.000	0.000	0.00	0.000	1496.24	1.95 32 0.004 0.002
2400.0	2369.0	2.019	0.000	0.000	0.00	0.000	1497.51	1.85 33 0.004 0.003
2500.0	2467.2	1.929	0.000	0.000	0.00	0.000	1498.84	1.75 26 0.004 0.005
2600.0	2565.2	1.851	0.000	0.000	0.00	0.000	1500.16	1.66 20 0.005 0.002

SHIP : HMAS COOK - Plessey  
 STATION NUMBER : 18 (THROUGH THE CRUISE)  
 STATION NUMBER : 0 (THROUGH THE YEAR)  
 DATE : 09-SEP-1986 (DAY NUMBER 252)  
 START TIME : 0050 GMT - 2  
 CRUISE : CK17/86  
 POSITION : 35111.35S 155.54.63E  
 CAST DEPTH : 0 METRES  
 BOTTOM DEPTH : 4693 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
10.0	9.9	17.148	0.000	0.000	0.00	0.000	1514.23	17.15 47 0.014 0.053
20.0	19.9	17.122	0.000	0.000	0.00	0.000	1514.32	17.12 52 0.005 0.040
30.0	29.8	17.111	0.000	0.000	0.00	0.000	1514.45	17.11 63 0.005 0.037
40.0	39.7	17.107	0.000	0.000	0.00	0.000	1514.62	17.10 53 0.000 0.004
50.0	49.6	17.103	0.000	0.000	0.00	0.000	1514.79	17.09 52 0.004 0.004
60.0	59.6	16.956	0.000	0.000	0.00	0.000	1514.31	16.98 49 0.018 0.030
70.0	69.5	16.917	0.000	0.000	0.00	0.000	1512.73	16.97 52 0.054 0.050
80.0	79.4	16.169	0.000	0.000	0.00	0.000	1512.27	16.16 61 0.093 0.119
90.0	89.3	15.814	0.000	0.000	0.00	0.000	1511.31	15.80 55 0.048 0.050
100.0	99.2	15.641	0.000	0.000	0.00	0.000	1510.97	15.63 55 0.042 0.025
110.0	109.1	15.493	0.000	0.000	0.00	0.000	1510.94	15.48 54 0.026 0.023
120.0	119.0	15.403	0.000	0.000	0.00	0.000	1511.29	15.46 65 0.018 0.029
130.0	128.9	15.319	0.000	0.000	0.00	0.000	1511.09	15.31 57 0.012 0.036
140.0	138.8	15.170	0.000	0.000	0.00	0.000	1509.32	14.72 41 0.127 0.123
150.0	148.7	14.740	0.000	0.000	0.00	0.000	1507.28	14.00 65 0.105 0.090
160.0	158.6	14.020	0.000	0.000	0.00	0.000	1506.00	13.52 64 0.079 0.082
170.0	168.5	13.554	0.000	0.000	0.00	0.000	1504.66	13.04 53 0.069 0.073
180.0	178.4	13.073	0.000	0.000	0.00	0.000	1503.21	12.51 57 0.041 0.048
190.0	188.3	12.545	0.000	0.000	0.00	0.000	1502.53	12.24 60 0.112 0.128
200.0	198.2	12.281	0.000	0.000	0.00	0.000	1500.95	11.69 57 0.040 0.035
210.0	208.1	11.720	0.000	0.000	0.00	0.000	1500.14	11.38 60 0.073 0.082
220.0	218.0	11.442	0.000	0.000	0.00	0.000	1499.17	11.00 52 0.011 0.026
230.0	227.9	11.046	0.000	0.000	0.00	0.000	1497.99	10.62 67 0.118 0.115
240.0	237.8	10.662	0.000	0.000	0.00	0.000	1496.96	10.21 58 0.057 0.058
250.0	247.7	10.251	0.000	0.000	0.00	0.000	1495.97	9.80 58 0.050 0.050
260.0	257.6	9.822	0.000	0.000	0.00	0.000	1495.09	9.55 58 0.045 0.046
270.0	267.5	9.326	0.000	0.000	0.00	0.000	1494.39	9.28 64 0.034 0.034
280.0	277.4	8.929	0.000	0.000	0.00	0.000	1493.80	8.95 35 0.016 0.020
290.0	287.3	8.578	0.000	0.000	0.00	0.000	1493.01	8.74 35 0.017 0.008
300.0	297.2	8.278	0.000	0.000	0.00	0.000	1492.49	8.52 28 0.052 0.043
310.0	307.1	8.052	0.000	0.000	0.00	0.000	1491.31	7.99 31 0.009 0.011
320.0	317.0	7.510	0.000	0.000	0.00	0.000	1490.38	7.55 31 0.029 0.029
330.0	326.9	6.723	0.000	0.000	0.00	0.000	1488.54	6.44 29 0.013 0.011
340.0	336.8	5.997	0.000	0.000	0.00	0.000	1487.27	5.92 32 0.019 0.014
350.0	346.7	5.111	0.000	0.000	0.00	0.000	1485.45	5.07 32 0.010 0.009
360.0	356.6	4.722	0.000	0.000	0.00	0.000	1485.38	4.64 30 0.005 0.003
370.0	366.5	4.242	0.000	0.000	0.00	0.000	1485.06	4.16 31 0.011 0.007
380.0	376.4	3.882	0.000	0.000	0.00	0.000	1485.22	3.79 28 0.008 0.008
390.0	386.3	3.531	0.000	0.000	0.00	0.000	1485.45	3.44 28 0.011 0.007
400.0	396.2	3.233	0.000	0.000	0.00	0.000	1485.85	3.13 31 0.007 0.007
410.0	406.1	2.994	0.000	0.000	0.00	0.000	1486.52	2.89 30 0.019 0.012
420.0	416.0	2.791	0.000	0.000	0.00	0.000	1487.12	2.68 18 0.007 0.004
430.0	425.9	2.622	0.000	0.000	0.00	0.000	1488.27	2.50 31 0.010 0.004
440.0	435.8	2.483	0.000	0.000	0.00	0.000	1489.37	2.36 27 0.003 0.004
450.0	445.7	2.346	0.000	0.000	0.00	0.000	1490.66	2.25 30 0.005 0.003
460.0	455.6	2.207	0.000	0.000	0.00	0.000	1492.01	2.17 32 0.005 0.000
470.0	465.5	2.079	0.000	0.000	0.00	0.000	1493.40	2.09 31 0.000 0.003
480.0	475.4	2.148	0.000	0.000	0.00	0.000	1494.70	1.99 30 0.005 0.004
490.0	485.3	2.084	0.000	0.000	0.00	0.000	1496.12	1.92 32 0.004 0.004
500.0	495.2	2.022	0.000	0.000	0.00	0.000	1497.53	1.85 32 0.005 0.004
510.0	505.1	1.938	0.000	0.000	0.00	0.000	1498.97	1.76 28 0.003 0.003
520.0	515.0	1.855	0.000	0.000	0.00	0.000	1500.20	1.67 32 0.000 0.001

2700.0	2663.3	1.783	0.000	0.000	0.00	0.000	1501.60	1.59	30	0.002	0.004
2800.0	2761.3	1.684	0.000	0.000	0.00	0.000	1502.88	1.39	23	0.003	0.004
2900.0	2859.2	1.597	0.000	0.000	0.00	0.000	1505.18	1.39	23	0.003	0.004
3000.0	2957.2	1.521	0.000	0.000	0.00	0.000	1505.56	1.20	29	0.006	0.003
3100.0	3055.0	1.445	0.000	0.000	0.00	0.000	1506.94	1.22	33	0.004	0.000
3200.0	3152.9	1.381	0.000	0.000	0.00	0.000	1506.36	1.15	29	0.006	0.004
3300.0	3250.6	1.324	0.000	0.000	0.00	0.000	1509.87	1.10	31	0.004	0.004
3400.0	3348.4	1.269	0.000	0.000	0.00	0.000	1511.32	1.02	42	0.006	0.003
3500.0	3446.1	1.214	0.000	0.000	0.00	0.000	1512.89	0.98	40	0.004	0.004
3600.0	3543.9	1.159	0.000	0.000	0.00	0.000	1514.46	0.93	23	0.004	0.003
3700.0	3641.3	1.104	0.000	0.000	0.00	0.000	1516.11	0.88	35	0.004	0.002
3800.0	3738.9	1.173	0.000	0.000	0.00	0.000	1517.78	0.88	35	0.004	0.002
3900.0	3836.4	1.168	0.000	0.000	0.00	0.000	1519.49	0.87	42	0.005	0.000
4000.0	3933.9	1.165	0.000	0.000	0.00	0.000	1521.22	0.86	35	0.003	0.001
4100.0	4031.3	1.162	0.000	0.000	0.00	0.000	1522.96	0.84	22	0.004	0.004
4200.0	4128.7	1.164	0.000	0.000	0.00	0.000	1524.68	0.83	22	0.003	0.004
4300.0	4226.1	1.159	0.000	0.000	0.00	0.000	1526.43	0.82	19	0.004	0.007
4400.0	4323.5	1.158	0.000	0.000	0.00	0.000	1528.18	0.81	33	0.004	0.026
4500.0	4420.6	1.158	0.000	0.000	0.00	0.000	1529.95	0.81	22	0.005	0.002
4600.0	4517.8	1.160	0.000	0.000	0.00	0.000	1531.67	0.78	22	0.005	0.003
4700.0	4615.0	1.154	0.000	0.000	0.00	0.000	1533.40	0.77	24	0.004	0.004
4740.0	4653.9	1.148	0.000	0.000	0.00	0.000	1534.01	0.76	17	0.004	0.004

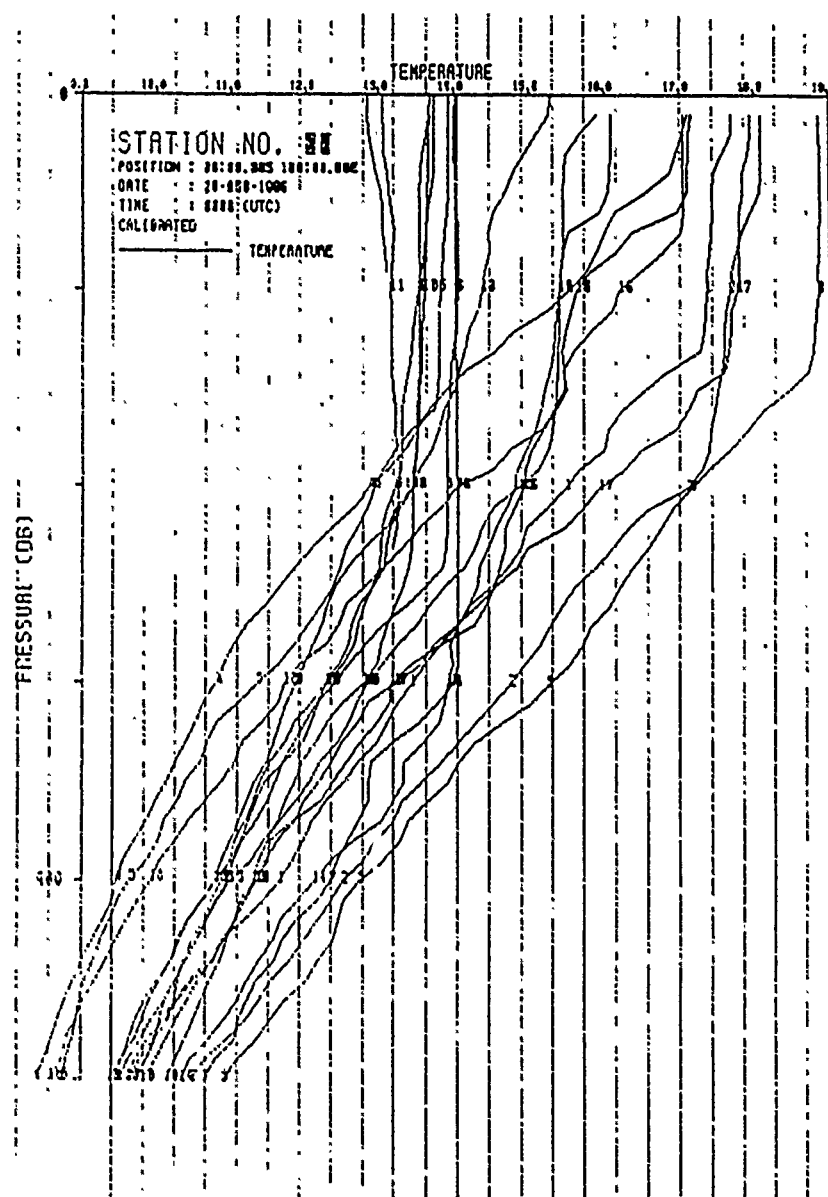


Figure 95. Overplot of VCTOD temperature profiles to 500 m for survey SEAMAP 4 (RANRL 17/86) winter route B

## DISCUSSION

This report presents oceanographic data for three cruises made in winter in the south west Pacific ocean from 1985 to 1987. Summer data are presented as a separate report (Hamilton and Boyle, 1989). Detailed analyses are not made in these reports, but pointers are given to some of the main features of interest in the data. The salinity sensor in the VCTOD probe was not well calibrated, and was subject to large unexplained shifts between stations for cruise SEAMAP 6. The salinity data is calibrated and self consistent for cruise SEAMAP 2, except for station 10 where a rosette sampler was not used. No quality salinity data were obtained on SEAMAP 4. Sources of additional data for each cruise are given when known, but a detailed search for other data sources has not been made. Investigations were being carried out west of North Island, New Zealand, by several organisations, including New South Wales University (Dr Jason Middleton) which may have obtained data during the SEAMAP cruise periods, particularly from CTDs and current meters.

## ACKNOWLEDGEMENTS

Data logging, winch operations and station keeping were controlled by HMAS COOK naval staff. Bridge watchkeepers made the wind and sea state observations given in this report. The bulk of the CTD data processing programs were written by Dr N. White, and were made available to RANRL by CSIRO Marine Laboratories Hobart. This generous assistance is much appreciated. Mr B. Scott was cruise leader for these SEAMAP surveys, and his capable direction ensured a good data return in often difficult circumstances. Mrs Pat Vlaming was tracer for the majority of diagrams. Mr Martin Zile of Hydrographic Office North Sydney and Dr Mark Irving of Maritime Systems Division provided useful information on reading and decoding the VCTOD data from the HMAS Cook data logger tapes. Task Manager of Project SEAMAP is Dr M.V. Hall.

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Vol.13: pp.18-47, 1962

## APPENDIX I

PARAMETERS CONTINUOUSLY RECORDED ON THE HMAS COOK HEWLETT  
PACKARD HP1000 DATA LOGGER

Parameter	Instrument	Sampling rate	
Time	Clock	0.1 s	
Position fix	satnav	10 s	
Ship's heading	Gyro compass	1 s	
Ship's speed	Electromagnetic log	1 s	
Depth	SNBESS	1 s to 1 min	*
Depth	AN/UQN-4 (BBES)	0.1 s to 1 min	*
Sound velocity Conductivity Temperature Oxygen content	VCTOD instrument package (Plessey)	1.66 Hz	*

\* Sensor data referred to in this report.

## PARAMETERS CONTINUOUSLY RECORDED ON THE HMAS COOK HP1000 DATA LOGGER

Parameter	Instrument	Sampling interval logging	
Pitch	Gyrocompass	0.2 s	
Roll	Gyrocompass	0.2 s	
Atmosphere pressure	BUMET	10 s	
Wind speed	Anemometer	1 s	*
Wind direction	Vane	1 s	*
Wave height	Datawell waverider buoy	0.1 s	
Air temp (dry bulb) port and stb'd	BUMET	3 s	
Air temp (wet bulb) port and stb'd			
Global short wave radiation	BUMET	30 s	

\* Sensor data referred to in this report.

## PARAMETERS CONTINUOUSLY RECORDED ON THE HMAS COOK HP1000 DATA LOGGER

Parameter	Instrument	Sampling interval logging	
Downward radiation & air temperature	BUMET	30 s	
Sea surface temperature (upper)	(Plessey)	10 s	*
Sea surface temp/salinity	Thermo-salinograph (Plessey)	10 s	*
Sea surface temperature duplicated (lower)	BUMET	10 s	*
Bathy-thermograph (XBT)	Sippican expendable	0.1 s	*

Dead reckoning to be calculated from last SATNAV fix plus gyro/log inputs, and allowing for regularly updated correction. The drift correction ideally be able to be made retrospectively to update DR positions. Alternatively, updated drift correction from previous period to be used for period between fixes.

## APPENDIX II

## LIST OF PUBLICATIONS FOR SEAMAP DATA TYPES NOT COVERED BY THIS REPORT

- 1 Baker, E.K.,  
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Jenkins, C.J.,  
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Ocean Sciences Institute (University of Sydney) publications listed were prepared under contract for Ocean Sciences Group, Maritime Systems Division, WSRL

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## 15 DESCRIPTORS

a. EJC Thesaurus  
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XBTb. Non - Thesaurus  
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## 17 SUMMARY OR ABSTRACT

(if this is security classified, the announcement or this report will be similarly classified)

Six oceanographic surveys have been made in the south west Pacific Ocean on HMAS Cook from January 1984 to September 1987 as part of an investigation of physical and acoustical oceanographic parameters known as project SEAMAP. This report presents winter survey data for bathymetry, sea surface temperature, wind speed, sea state and swell, and from expendable bathy-thermograph (XBT) drops, and CTD and Nansen stations. Underway data are mostly presented as four-hourly discrete values on maps of ship track, forming a representative data set rather than a detailed analysis. (The winter survey tracks were also traversed in oceanographic summer; the summer data are presented in a separate report.)